

ORDER NO. KM40306110C2

Service Manual

Telephone Equipment

KX-TCD455GM / KX-A145EXM

Digital Cordless Phone

Metalic Gray Version

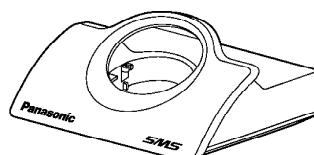
(for Germany)

Caller ID and SMS Compatible

SMS



KX-A145EXM
(HANDSET)



KX-TCD455GM
(BASE UNIT)



(CHARGER UNIT)

Configuration for each model

Model No	Base Unit	Handset	Charger Unit
KX-TCD455	1	1	
KX-A145		1	1

KX-A145 is optional accessory.

SPECIFICATIONS

SPECIFICATION

Standard:	DECT= (Digital Enhanced Cordless Telecommunications)	Power consumption, Base Unit:	Standby: 3.5 W / Maximum: 9.2 W
Number of channels:	120 Duplex Channels	Charger Unit:	Standby: 2.3 W / Maximum: 6.8 W
Frequency range:	1.88 GHz to 1.9 GHz	Battery life, Handset (if batteries are fully charged):	Stand-by: Up to 120 hours (Ni-MH) Talk: Up to 10 hours (Ni-MH)
Duplex procedure:	TDMA (Time Division Multiple Access)	Operating conditions:	5 - 40 °C, 20 - 80 % relative air humidity (dry)
Channel spacing:	1728 kHz	Dimensions, Base Unit (D x W x L):	58 mm x 128 mm x 105 mm
Bit rate spacing:	1152 kbit/s	Dimensions, Handset (D x W x L):	143 mm x 48 mm x 32 mm
Modulation:	GFSK= (Gaussian Frequency Shift Keying)	Dimensions, Charger Unit (D x W x L):	84 mm x 86 mm x 60 mm
RF Transmission Power:	approx. 250 mW	Weight, Base Unit:	about 170 g
Voice coding:	ADPCM 32 kbit/s	Weight, Handset:	about 120 g
Operation range:	Up to 300 m outdoors, Up to 50 m indoors	Weight, Charger Unit:	about 113 g
Analog telephone connection:	Telephone Line	Connection jack:	RJ11 to TAE-F Plug
Power source:	AC Adaptor (220 V - 240 V AC, 50 Hz)		

Specifications are subject to change.
The illustrations used in this manual may differ slightly from the original device.

IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING

If lead free solder was used in the manufacture of this product the printed circuit boards will be marked PbF. Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark. When this mark does appear please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

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WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

When you note the serial number, write down all 11 digits. The serial number may be found on the bottom of the unit.

Panasonic

1. ABOUT LEAD FREE SOLDER (PbF: Pb free)

Note:

In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

We will use PbF solder when discussing the lead free solder used in our manufacturing process which is made from Tin (Sn), Silver (Ag), and Copper (Cu).

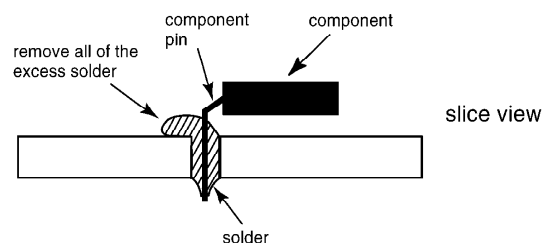
This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB. For service and repair work we suggest using the same type of solder although, with some precautions, standard Pb solder can also be used.

Caution

- PbF solder has a melting point that is 50°F ~70°F (30°C ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700°F ± 20°F (370°C ± 10°C). In

case of using high temperature soldering iron, please be careful not to heat too long.

- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F (600°C).
- If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.
- When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See the figure below).



1.1. Suggested PbF Solder

There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper (Sn+Ag+Cu), you can also use Tin and Copper (Sn+Cu) or Tin, Zinc, and Bismuth (Sn+Zn+Bi). Please check the manufacturer's specific instructions for the melting points of their products and any precautions for using their product with other materials.

The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3mm, 0.6mm and 1.0mm.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g

1.2. How to recognize that Pb Free solder is used

1.2.1. Base Unit PCB

(Component View)
(Flow Solder Side View)

Note:

The location of the “PbF” mark is subject to change without notice.

1.2.2. Handset PCB

(Component View)
(Flow Solder Side View)

Note:

The location of the “PbF” mark is subject to change without notice.

1.2.3. Charger Unit PCB

Note:

The location of the “PbF” mark is subject to change without notice.

2. FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When repairing, the following precautions will help prevent recurring malfunctions.

1. Cover the plastic parts boxes with aluminum foil.
2. Ground the soldering irons.
3. Use a conductive mat on the worktable.
4. Do not touch IC or LSI pins with bare fingers.


3. CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

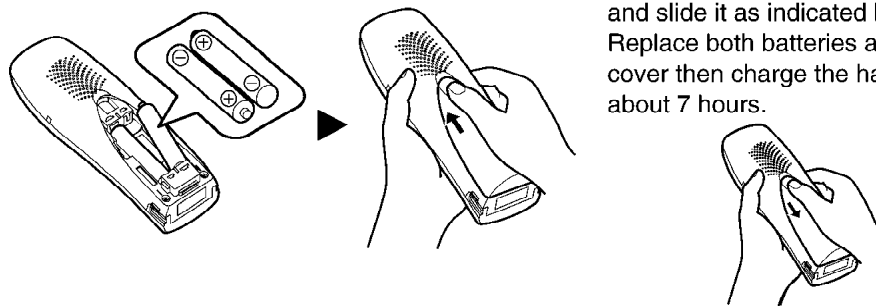
Dispose of used batteries according to the manufacture's Instructions.

4. BATTERY

4.1. Battery Installation

Please ensure the batteries are inserted as shown.  part should be inserted first.
Close the cover as indicated by the arrow.

- When you replace the batteries,  part should be removed first.



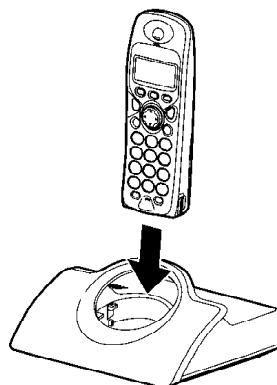
To replace the battery:

Press the notch on the cover firmly and slide it as indicated by the arrow. Replace both batteries and close the cover then charge the handset for about 7 hours.

4.2. Battery Charge

At the time of shipment, the batteries are not charged. To charge, place the handset on the base unit.

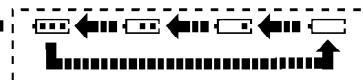
Please charge the batteries for about 7 hours before initial use. During charging, the battery icon is as shown below.







Fully charged

 (Flashing)

During charging



Display icon	Battery strength
	High
	Medium
	Low
	Needs to be charged

The handset which power is off will be turned on automatically when it is placed on the base unit.


In normal use, the handset and the base unit should be powered on at all times.

Note for Service:


The battery strength may not be indicated correctly if the battery is disconnected and connected again, even after it is fully charged.

In that case, by recharging the battery as mentioned above, you will get a correct indication of the battery strength.

4.3. Battery Life

- Battery life is dependent on use and conditions but in general when using fully charged Ni-MH batteries (700 mAh):
Talk time: 10hrs approx.
Standby time: 120hrs approx.
- When using Ni-Cd batteries (250 mAh):
Talk time: 4hrs approx.
Standby time: 40hrs approx.
(Times indicated are for peak performance)
- The batteries reach peak performance after several full charge/discharge cycles.
- The batteries cannot be overcharged unless they are repeatedly removed and replaced.
- If battery life is shortened then please check that battery and charge terminals are clean.
- For maximum battery life, it is recommended that the handset is not recharged until battery icon flashes .

4.4. Replacing the Batteries






If the  icon flashes after a few telephone calls even when the handset batteries have been fully charged, both batteries must be replaced.

Charge new batteries for approximately 7 hours before initial use.

(The telephone line cord must not be connected to the telephone socket at this time).

When replacing the batteries, ensure that the correct battery type is selected.

Selecting the Battery Type

1  Press MENU.	2  Search/Select "Setting Handset".	3  Search/Select "Other Option".	4  Search/Select "Battery Type".
5  Search/Select "Ni-Cd" or "Ni-MH".			

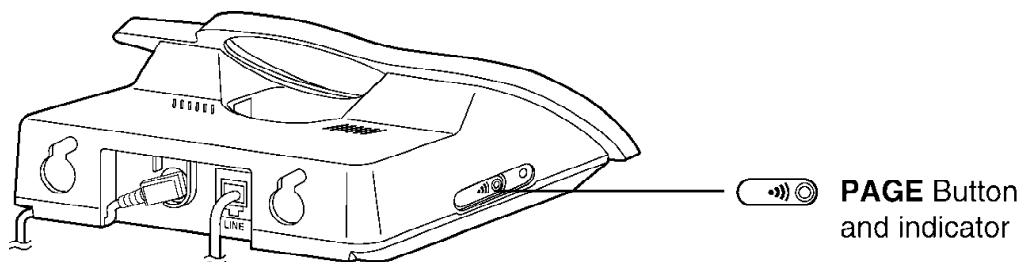
- To exit the operation, press  any time.

- Do not use non-rechargeable batteries. If non-rechargeable batteries are fitted and start charging, it may cause the leakage of the battery electrolyte.

Please use only Panasonic P03P(Ni-MH) or P03H(Ni-Cd) batteries.

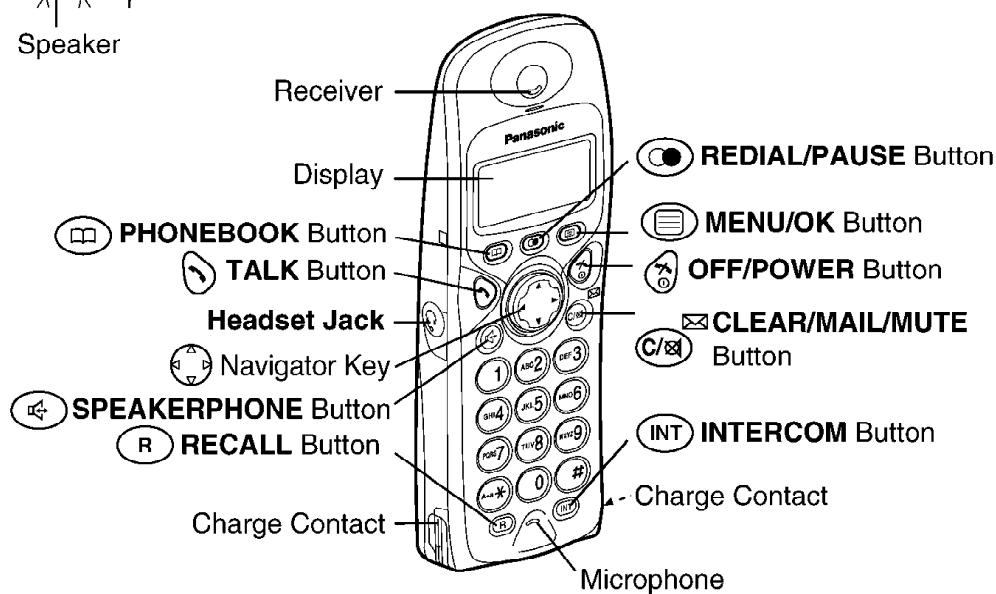
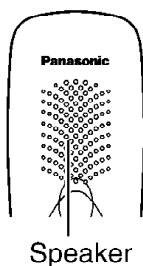
5. LOCATION OF CONTROLS

5.1. Base Unit



5.2. Handset

Rear side

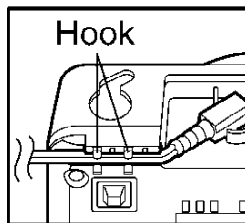


6. SETTINGS

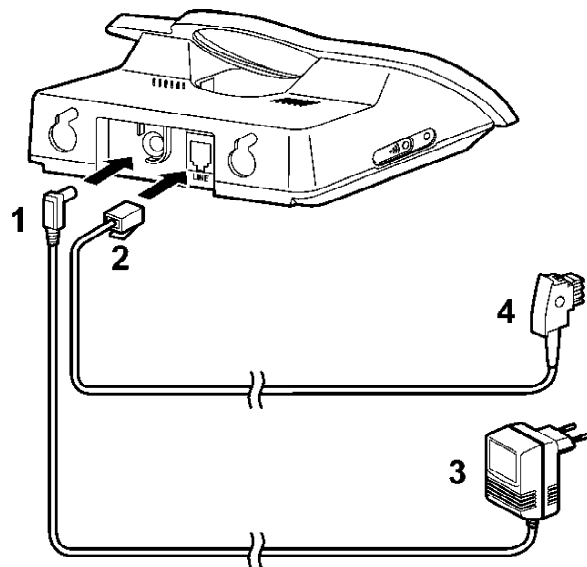
6.1. Connection

6.1.1. Base Unit

Plug in the AC adaptor and the telephone line cord in order 1, 2, 3, 4.



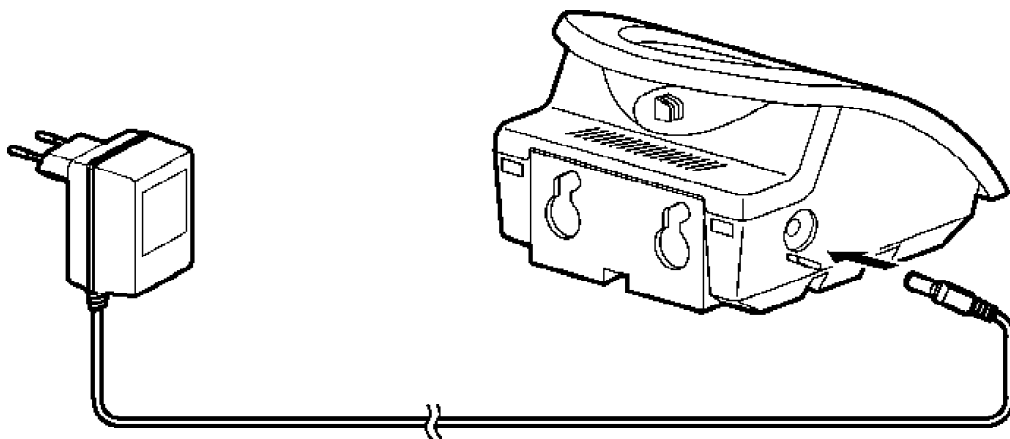
Fasten the AC adaptor cord to prevent it from being disconnected.



The AC adaptor must remain connected at all times (It is normal for the adaptor to feel warm during use).






- Never install telephone wiring during a lightning storm.

6.1.2. Charger Unit




The AC adaptor must remain connected at all times (It is normal for the adaptor to feel warm during use).

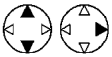
6.2. Symbols Used in This Service Manual


Symbol	Meaning
	To search the desired item, press UP or DOWN .
	To select the desired item, press RIGHT .
	To search and then to select the desired item, press UP or DOWN then RIGHT .
	To move the cursor to the right or to the left, press RIGHT or LEFT .
	To go to the next step.
" "	The words in " " indicate the words in display.


6.3. PIN Code

6.3.1. Base Unit

1  Press
MENU.

2  Search/Select
"Setting Base".

 "Input Command".

3  **4*** Current 4-digit Base Unit PIN

5 New 4-digit Base Unit PIN **6** New 4-digit Base Unit PIN again to verify

Changing Base Unit PIN

The factory preset is 0000. Once you have programmed the base unit PIN, you cannot confirm it. We recommend you write down the base unit PIN. If you forget it, please consult our Panasonic Customer Hotline. 0180 - 525 1367

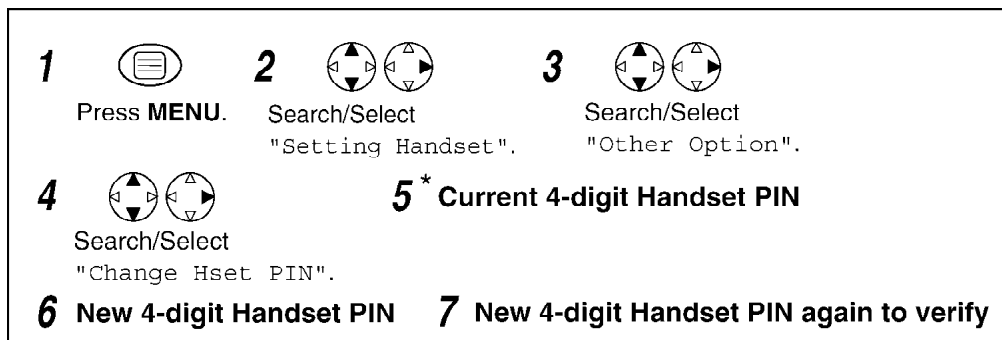
- To exit the operation, press  any time.

For Service Hint:

* : If the current 4-digit PIN is forgotten, press      and you will be able to enter new PIN.

6.3.2. Handset



Changing Handset PIN

The factory preset is 0000. Once you have programmed the handset PIN, you cannot confirm it. We recommend you write down the handset PIN. If you forget it, please consult our Panasonic Customer Hotline. 0180 - 525 1367

- To exit the operation, press  any time.
For Service Hint:



* : If the current 4-digit PIN is forgotten, press  and you will be able to enter new PIN.

6.3.3. Reset Base Unit PIN to Default (0000) -When There is NO Handset Registered-

6.3.3.1. Symptom

There is no way to reset base PIN when there is no handset registered to the base.

6.3.3.2. Thinkable Situation

- Customer may ask to reset base PIN because they forget it.
- Customer may bring only a base unit for repair and there is no handset registered to the base (Need to register another handset to the base to confirm if the unit works properly after repair).
- When original handset has broken and customer purchased a new one, if customer forget base PIN, customer cannot register the new handset and may ask to reset the PIN.

6.3.3.3. Remedy

<Preparation>

Refer to **JIGs and PC** ().

<Connection>

1. Solder a pin or lead wire to GND, SDA, and SCLK on base PCB.
2. Plug in AC adaptor to the base.
3. Turn on the power to the JIG (9V).
4. Then connect the cable to each pins using clip.

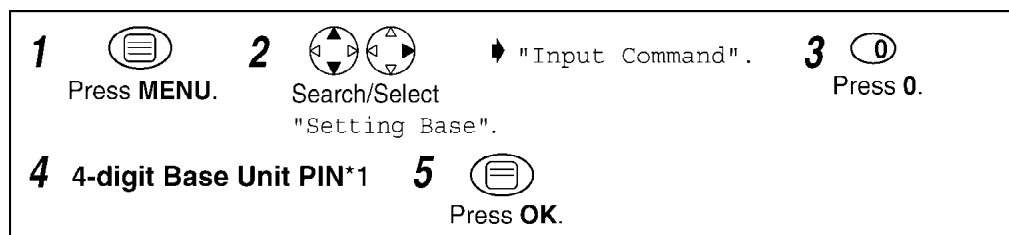
As for the connection between JIG and PCB, see below photos.


<PC setting and how to reset base PIN to default (0000)>

1. Refer to **PC Setting** ().
2. Next, execute <initbspin.bat> by typing "initbspin". The PC display will be shown as below.
3. After that, turn off DC power supply (9V) to the jig, unplug AC adaptor, and remove pins on PCB.
Then close the cabinet. The base pin returns to the default (0000) and you can register a handset to the base using the base PIN (0000).

6.4. Reset

6.4.1. Base Unit



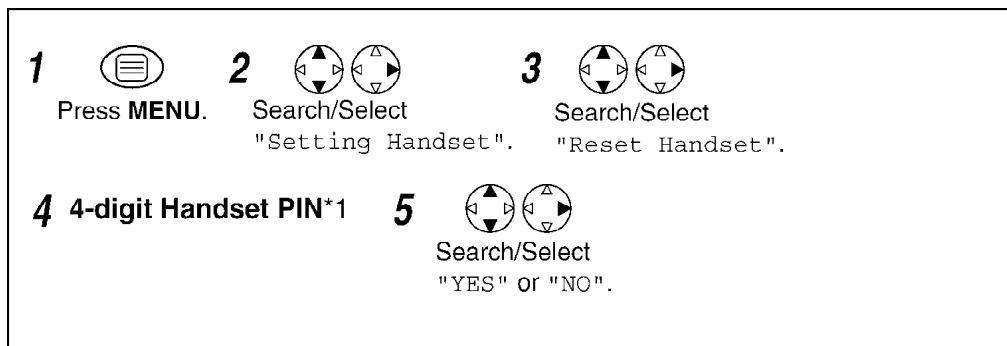
- To exit the operation, press  any time.
- *1: The factory preset is 0000.


Base Unit Initial Settings

Function	Initial Setting	Remarks (selectable o
Ringer Mode	All Handsets	All Handsets/Specific Har
Number of Rings	3	Up to 6 rings
Flash/Earth	Flash	-
Flash Timing	200 msec	80/200 msec
Pause Timing	3 seconds	3 seconds/5 seconds
Call Restricted Handsets	All Clear	Each Handset can be set indivisually.
Call Restriction Numbers	All Clear	Up to 10 numbers (up to 8
4-Digit Base Unit PIN	0000	-
ARS Setting	OFF	ON/OFF
Carrier Code	All Clear	-
Area Code	All Clear	-
Relation of Area Code	All Area Code to Carrier Code 1	1 to 5
SMS Message Centre Number	Message Centre 1	Centre 1/2
SMS Message Lists	All Clear	-



6.4.2. Handset

You can reset all of the handset settings to their initial settings.



- To exit the operation, press  any time.
- *1: The factory preset is 0000.

Handset Initial Settings

Function	Initial Setting	Remarks (selectable o
Time Alarm Mode	OFF	OFF/ON
Alarm Time	Clear	OFF/Once/Daily
Handset Ringer Volume	3	-
Handset External Ringer Pattern	1	20 patterns
Handset Internal Ringer Pattern	1	20 patterns
Handset Paging Tone Pattern	1	20 patterns
Handset Alarm Tone Pattern	1	20 patterns
Key Tone	ON	ON/OFF
Call Waiting Tone	ON	ON/OFF
Range Warning Alarm	OFF	OFF/ON
Battery Low Alarm	ON	ON/OFF
Standby Mode Display	Base unit number	Clock/OFF/Base No./Hand
Talk Mode Display	Length of the Call	Talk Time/Phone No.
Display Language	German	23 languages
Call BAR	OFF	OFF/ON
Direct Call Mode	OFF	OFF/ON
Direct Call Number	Clear	Up to 24 digits
4-Digit Handset PIN	0000	-
Auto Talk	OFF	OFF/ON
Base Unit Access	Automatic Base Unit Access	Auto/Specific Base Unit M
Redial Memory	All Clear	All Clear/Clear (Selected I
Handset Receiver Volume	Medium	Low/Medium/High
Walkie-Talkie Setting	Group	Common/Group
SMS Text Input Mode	LetterWise 	LetterWise  /Nomal/G Extended/Numeric

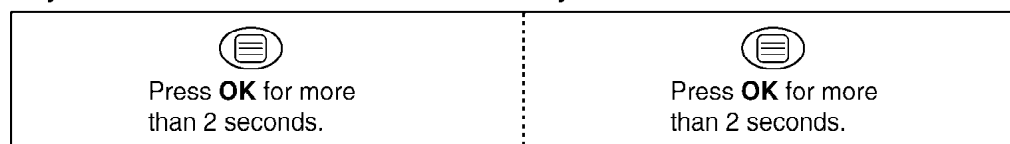
6.5. Key Lock

You can lock the handset dialling buttons. Only incoming calls are accepted while the key lock is on. The key lock is cancelled if the handset is turned off.

When the key lock is on, emergency calls cannot be made until key lock is cancelled.

Key Lock On

Key Lock Off



- " [X] " is displayed (Refer to **Handset Display ()**) and all

dialling buttons are locked.

6.6. Recall Feature

RECALL is used to access special telephone services. Contact your Network provider for details. If your unit is connected to a PBX, pressing RECALL allows you to access some features of your host PBX such as transferring an extension call.

6.7. Dialling Pause for PBX line/long distance service users

A dialling pause is used when a pause in the dialling of the phone number is necessary using a PBX or accessing a long distance service.

For example, when 9 (line access number) is dialled followed by a pause to access an outside line through a PBX:



- Entering a pause prevents misdialling when you redial or dial a stored number.
- Pressing PAUSE once creates one pause. To extend the pause requirement time, press PAUSE accordingly.

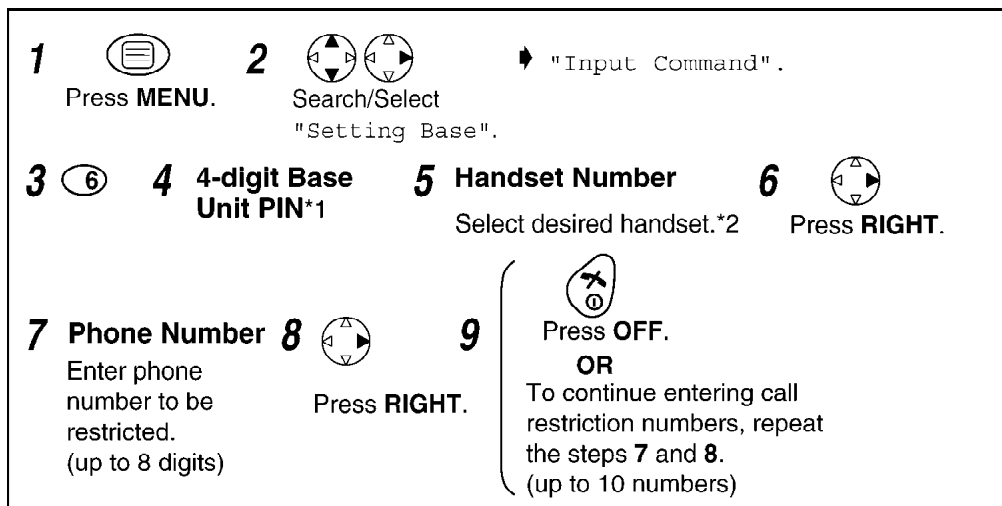
"P"


*1 "P" is displayed (Refer to [Handset Display \(\)](#)) on the LCD.

*2 You can also press SPEAKERPHONE to make a call.

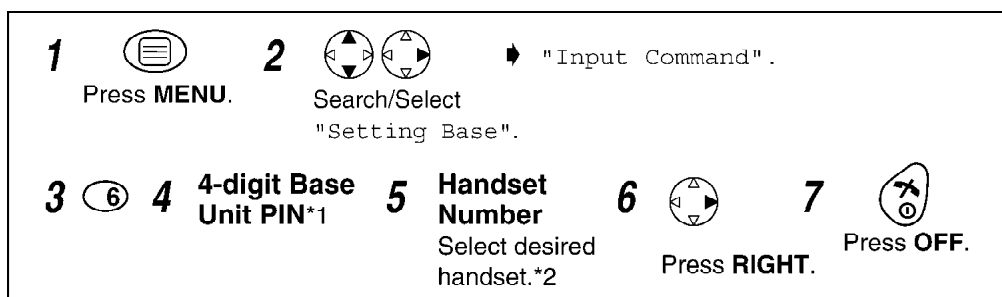
6.8. Call Restriction

You can restrict selected handset(s) from dialling selected phone numbers. You can assign up to 10 call restriction numbers (up to 8 digits). If you dial a restricted number, the call does not connect and restricted number flashes.



- To exit the operation, press  any time.
- *1: The factory preset is 0000.
- *2: The selected handset number flashes.

6.9. Cancelling Call Restricted Handset(s)





- To exit the operation, press  any time.
- *1: The factory preset is 0000.
- *2: The selected handset(s) will stop flashing.

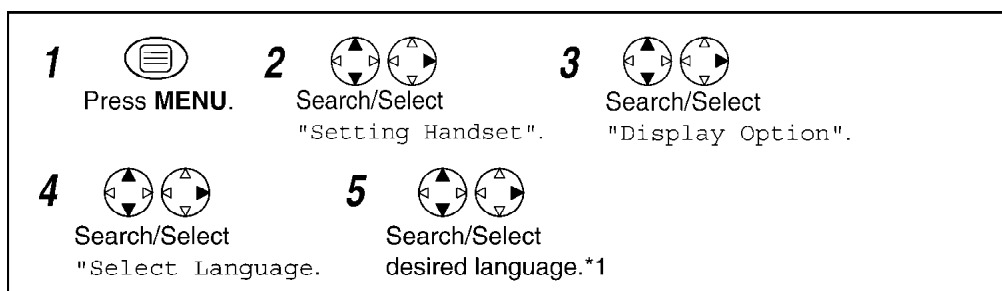
6.10. Call BAR On/Off (Call Prohibition On/Off)


You cannot make any dialling if call BAR is on.



- To exit the operation, press  any time.
- *1: The factory preset is 0000.
- *2: If "ON" is selected,  is displayed (Refer to [Handset Display \(\)](#)).

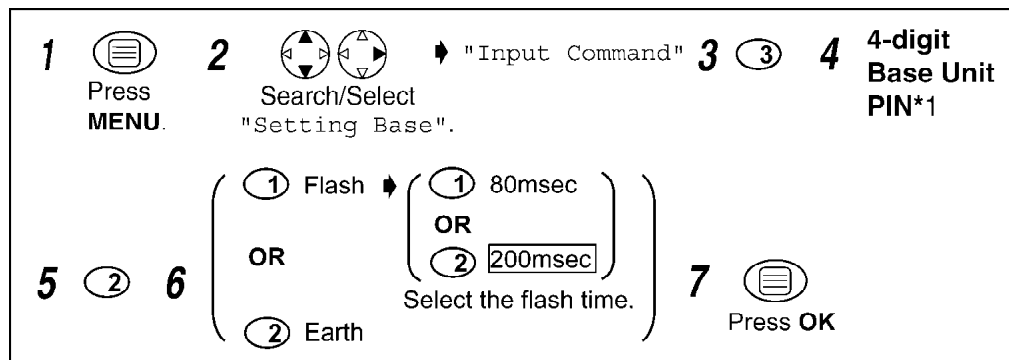
6.11. Selecting the Display Language



- To exit the operation, press  any time.
- *1 You can select one of 23 languages. If you set a language you cannot read, reset the handset to its initial settings.
Press **MENU** → **DOWN** → **DOWN** → **RIGHT** → **UP** → **RIGHT** → 4-digit Handset PIN → **UP** → **OK**
All handset setting will be reset to their initial settings, however, the Phonebook data will be saved.

6.12. Select Flash/Earth Mode

An earth relay can be installed as an option depending on your PBX requirements. Please consult our Panasonic Service Centre for installation. On installation, you can select flash or earth mode to suit your PBX or Network provider.



- To exit the operation, press  any time.

- *1: The factory preset is 0000.

For Service Hint: Refer to [Flash Time setting](#) ()

6.13. Automatic Route Selection

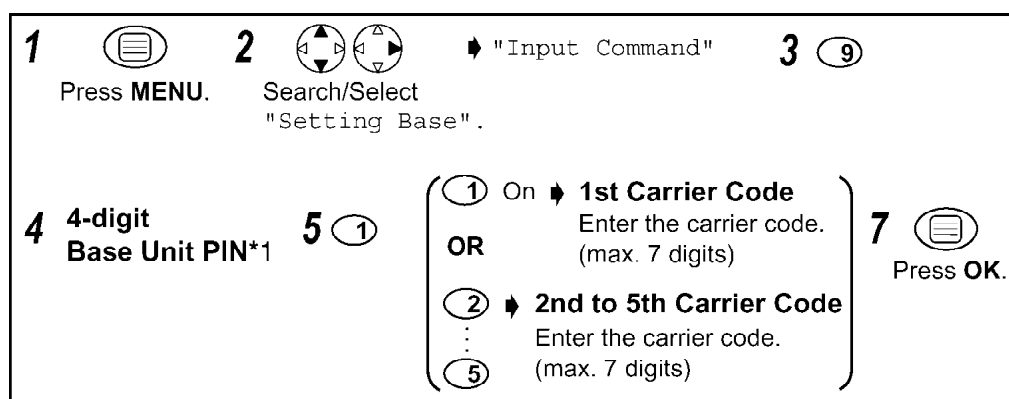
Automatic Route Selection is a feature which selects the least expensive carrier (network) service available, when making long distance calls.

When area code(s) have been related to carrier codes, you will need only dial the area code, the lower costing carrier (network) will automatically be dialled.

Please contact your telephone company regarding the carrier telephone charges.

6.13.1. Storing the Carrier Code(s)

Firstly you must subscribe to a second carrier (network) service. You can subscribe to a limit of 5 carrier services. Then store the code as follows:

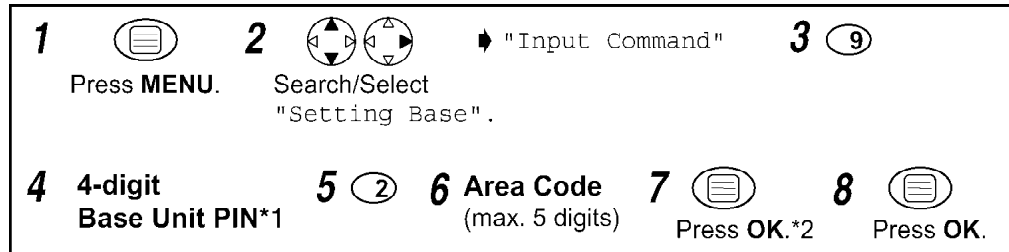


- To exit the operation, press  any time.

- *1: The factory preset is 0000.

6.13.2. Storing the Area Code(s)

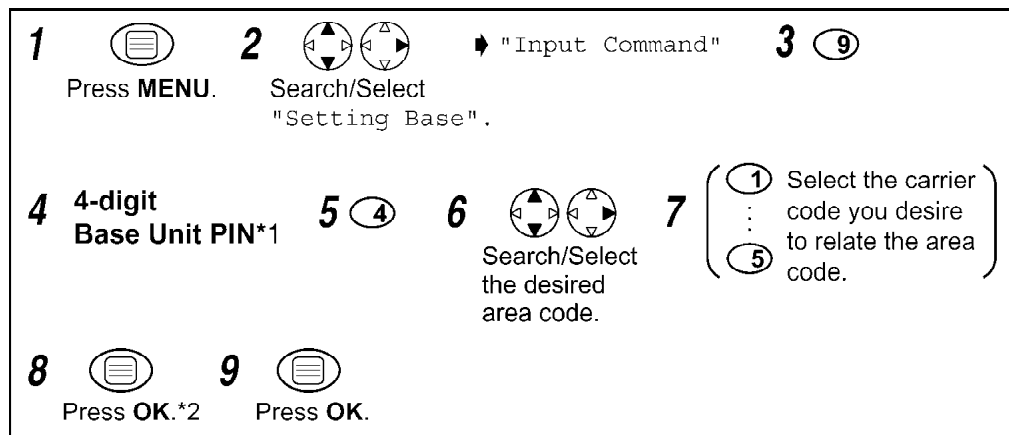
Store the area code(s) for which the chosen carrier (network) service charge rates are lower than the original carrier (network) service. Up to 25 area codes can be stored.



- To exit the operation, press any time.
- *1: The factory preset is 0000.
- *2 If you need more area code storing, repeat the steps from 6.

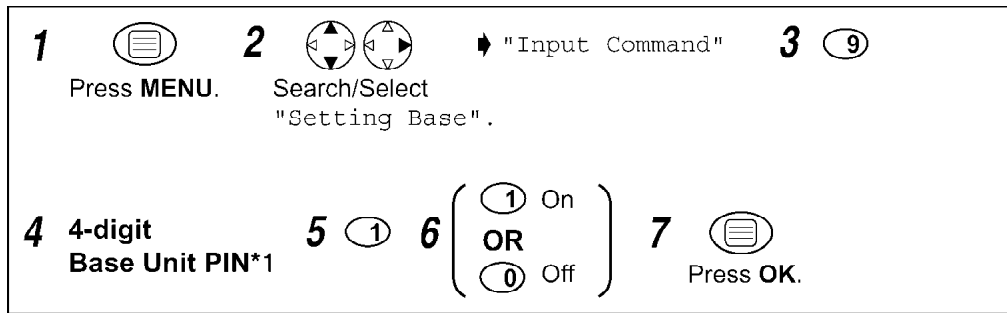
6.13.3. Relate the Area Code(s) to the Carrier Code(s)

After storing carrier code(s) and area code(s), you must relate the stored area code(s) to your chosen lower costing carrier code. It is only necessary to relate area codes to carrier codes if more than one carrier code has been stored. If only one carrier code has been stored, any area codes you store (up to 25) will automatically be dialed with that carrier code.



- To exit the operation, press any time.
- *1: The factory preset is 0000.
- *2 If you need more relating area codes to carrier codes, repeat the steps from 5.

6.13.4. Automatic Route Selection On/Off



- To exit the operation, press  any time.
- *1: The factory preset is 0000.

6.14. Summary of Programmable Functions

You can select and execute the following functions by pressing direct command as follows without programming.

These operations need to be done with the Handset near the base unit.

Press . Press  or  until the arrow points to "Setting Base", then press . "Input Command" is displayed.*1

<Direct command>













1 → 4-digit Base Unit PIN → 1	Setting the All Handsets Mode
1 → 4-digit Base Unit PIN → 2	Setting the Selected Handsets Mode
1 → 4-digit Base Unit PIN → 3	Setting the Selected then All Handsets Mode
3 → 4-digit Base Unit PIN → 3	Pause Timing
5	Changing Base Unit PIN
6	Call Restriction
7	Cancelling a Handset
9 → 4-digit Base Unit PIN → 1	Automatic Route Selection
0	Reset Base Unit Settings
*	Setting the Clock
* *	Setting the Date

*1 If any key is not pressed over 60 seconds, the display will return to "Setting Base".

*2 Refer to **PIN Code** () for more details.

7. DISPLAY

7.1. Handset Display

Icon	Displays	Icon	Displays
	Within range of a base unit		Call Bar ON
	Out of range/No registration/ No power on base unit		Direct Call ON
	Paging		Key Lock ON
	Making or answering calls		Dialling Pause
	Battery strength is low.		SMS mail icon
	Battery strength is high.		An SMS mail (text message) has arrived. If flashing quickly, SMS memory is full.

7.2. Before Requesting Help (Troubleshooting)




If you experience any problems with the normal use of your apparatus, you should unplug it from the telephone outlet and connect a known working telephone in its place.

If the known working telephone still has problems, then please contact the customer service department of your Network provider.

If it operates correctly, then the problem is likely to be a fault in your apparatus.

In this case, contact your supplier for advice. Your Network provider may charge you if they attend a service call that is not due to apparatus supplied by them.

Turn the power OFF then ON (Handset) / Disconnect then connect the AC adaptor (Base Unit).

Problem	Possible cause	Solution
Display is blank.	<ul style="list-style-type: none"> Handset not turned on. 	<ul style="list-style-type: none"> Turn on power. →(Refer to Power On/Off.)
Handset will not turn on.	<ul style="list-style-type: none"> Batteries not inserted. Batteries not charged. 	<ul style="list-style-type: none"> Insert the 2 rechargeable batteries supplied . Place handset in base and connect AC adaptor to base and AC outlet (full charge period 7 hrs).
Batteries charge icon not counting up.	<ul style="list-style-type: none"> Dirty charge contact. Base not powered up. 	<ul style="list-style-type: none"> Clean charge / battery contact and retry charge. Connect AC adaptor to base unit and AC outlet.
📶 icon flashes.	<ul style="list-style-type: none"> Handset not registered to base. Handset out of range of base. No power into base unit. 	<ul style="list-style-type: none"> Register handset to base. Move handset closer to base. Connect AC adaptor to base unit and AC outlet.
Handset busy tone heard when  is pressed.	<ul style="list-style-type: none"> Handset out of range of base. Another handset in use. 	<ul style="list-style-type: none"> Move handset closer to base. Wait for the other user to complete call.
No dial tone.	<ul style="list-style-type: none"> Telephone line not connected. 	<ul style="list-style-type: none"> Insert telephone cord to network. Turn power OFF then ON.
Cannot dial out.	<ul style="list-style-type: none"> Call BAR set. Particular dialled number is restricted. Key lock mode ON. 	<ul style="list-style-type: none"> Turn feature off. →(Refer to Call BAR On/Off.) Remove number from call restricted list. Turn key lock OFF. →(Refer to Key Lock.)
Handset will not ring.	<ul style="list-style-type: none"> Ringer switched off. 	<ul style="list-style-type: none"> Set ringer to one of 6 volume levels.
Last number redial does not work.	<ul style="list-style-type: none"> Number exceeded 24 digits. 	<ul style="list-style-type: none"> Redial manually.
No Caller ID number displayed.	<ul style="list-style-type: none"> Service not supplied. Caller has withheld info. 	<ul style="list-style-type: none"> Caller ID service must be arranged with Network provider.
 icon flashes.	<ul style="list-style-type: none"> Battery low. 	<ul style="list-style-type: none"> Recharge batteries.
 icon has disappeared.	<ul style="list-style-type: none"> Wrong battery type selected. 	<ul style="list-style-type: none"> Set the correct battery type.
Cannot register handset to base.	<ul style="list-style-type: none"> Max. number of bases already registered to handset. Max. number of handsets already registered to base unit. Wrong PIN number entered (Default 0000). Electrical noise in local area. 	<ul style="list-style-type: none"> Delete unused base registrations from handset. Delete unused handset registrations from base. If PIN number is lost, contact the Customer Hotline. →(Refer to Call Restriction.) Move base/handset away from sources of electrical noise (e.g TV, radio).
The beginning of the ring from external call may be a little delayed.	<ul style="list-style-type: none"> For SMS feature is installed. 	<ul style="list-style-type: none"> It is normal.
SMS-Text Message		
Problem	Possible cause	Solution
Cannot send a message.	<ul style="list-style-type: none"> You have not subscribed to Caller ID. SMS Centre number is not stored in your telephone. Message was interrupted during sending. 	<ul style="list-style-type: none"> Caller ID service must be arranged with Network provider. Store the number. Wait until the message has been sent before using any other telephone functions.
Cannot send or receive a message.	<ul style="list-style-type: none"> Memory is full. 	<ul style="list-style-type: none"> Clear messages in the Outgoing/Incoming lists.
Error Code	Description	
FD	<ul style="list-style-type: none"> Could not connect to the SMS Centre. Check that you have the correct SMS Centre numbers. Handset out of range of base. 	
FE	<ul style="list-style-type: none"> There was a problem sending the message. 	
FO	<ul style="list-style-type: none"> Your number is permanently withheld or you have not subscribed to a Caller ID service. 	

Cross Reference:



Power On/Off ()


Call BAR On/Off (Call Prohibition On/Off) ()

Key Lock ()
Call Restriction ()



8. OPERATIONS

8.1. Power On/Off

Power on	Power off
 Press for more than 2 seconds. *1	 Press for more than 2 seconds. *2




-  *1 When button is released, the display changes to the standby mode.
- *2 The display goes blank.

8.2. Making a Call

Pre-dialling	Post-dialling
1 Phone Number *1 2  Press TALK. *2	1  Press TALK. *2 2 Phone Number

- *1 If you need to make a correction, press CLEAR. The digit is cleared to the left, then you can enter numbers. All digits are cleared if you press and hold CLEAR.
- *2 You can also press SPEAKERPHONE to make a call.

8.3. Answering a Call

Terminating a Call	
 →  Press TALK. *1	(During a call) →  Press OFF.

- *1 You can also answer a call by pressing any dialling button, INTERCOM, #, * or SPEAKERPHONE.

8.4. Setting the Clock/Date

After a mains power failure the clock needs to be reset. Ensure that  icon is not flashing.

- To exit the operation, press  any time.

*1 The display shows the number of phonebook space available. If








"Memory Full" is displayed, the phonebook is full. To store, clear other stored items in the phonebook.

*2 If you need correction, press RIGHT or LEFT to move cursor then clear the character/digit by pressing CLEAR, and/or enter characters/digits. Characters/digits are cleared or added to the left of the flashing character/digit. To enter characters, see Phonebook Character Table.

*3 To continue storing another caller information, repeat the steps from 3.

To change capital or lower case letters

Example: Enter the name using the letters on the keypad. For example, to enter Anne:





1		2		3		4	 twice	5		6	 twice	7	 twice
---	---	---	---	---	---	---	---	---	---	---	---	---	---

- Pressing  changes between upper and lower case.








To change the Character Mode

You can select one of 6 character modes by pressing **PHONEBOOK** while entering a name. The factory preset is "ABC".

For the full character map, see Phonebook Character Table.

1 	2 	3 Name
Press MENU .	Search/Select "New Phonebook".	Enter name. (max. 16 characters)
4 	5 	
Press PHONEBOOK while entering name.	Search/Select the desired character mode.	




To enter Names/Characters in the phonebook

Button	Note
	Press to move the cursor.
 to 	Press to enter letters/numbers. (Items are added to the left of the cursor. If the cursor is at the beginning of a line, the item is added over the cursor.)
	Press to delete characters. (Characters are deleted to the left of the cursor. If the cursor is at the beginning of a line, the first character will be deleted.) Press and hold to delete all characters.
	Press to change between upper and lower case.
	Press to insert a blank space (except when in Numeric 0-9 character mode).
	Press to insert a symbol (except when in Numeric 0-9 character mode).

- To enter two characters located on the same dialling button, enter the first character and then press **RIGHT** to move the cursor on one space to enter the next character.










8.5.2. Finding Items in the Phonebook

All phonebook items are stored in the following order: Alphabet Letter/Symbol/Number/Telephone number (when a name is not stored).





1 		2 
Press PHONEBOOK .	The first item is displayed.	Search for the desired item.*1

*1 Display order of characters




Editing a Caller Information

1 	2 	3 	➔ The 1st character of the desired name blinks.
Press PHONEBOOK . ^{*1}	Search/Select desired item.	Select "Edit".	
<Name>			
4 	5 	AND/OR	Name
Move the cursor.	Press CLEAR . ^{*2}		Edit the name. ^{*3}
<Phone Number>			
7 	8 	AND/OR	Number
Move the cursor.	Press CLEAR . ^{*4}		Edit the phone number. ^{*5}
10 	11 		
Search/Select Private Category number (1-9) or "OFF".	Select "Save".		

Clearing a Caller Information

1 			4 
Press PHONEBOOK . ^{*1}	Search/Select desired item.	Search/Select "Clear".	Search/Select "YES". ^{*6}

Dialling with the Phonebook

1 	2 	3 
Press PHONEBOOK . ^{*1}	Search desired item.	Press TALK . ^{*7}

- To exit the operation, press  any time.

^{*1} If there is no item stored in the phonebook, the display shows

"No Stored Memory".

^{*2} Characters are cleared to the left of the flashing character.

^{*3} Characters are added to the left of the flashing character. If you need to clear or add more than one character, repeat the steps from 4.

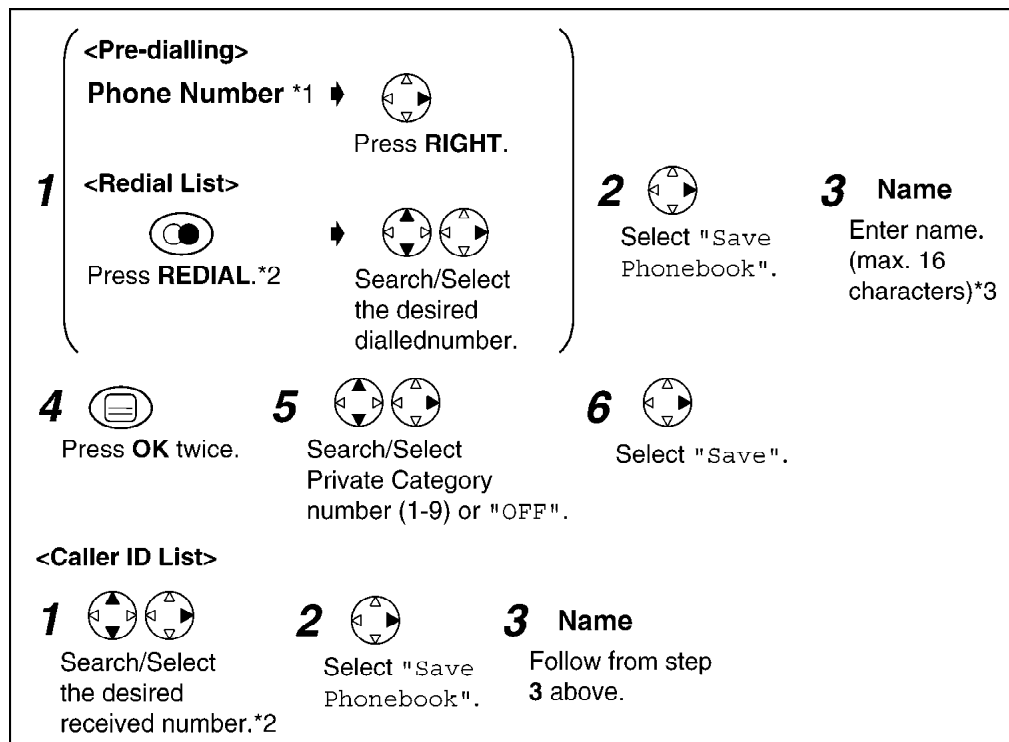
^{*4} Digits are cleared to the left of the flashing digit.

^{*5} Digits are added to the left of the flashing digit. If you need to clear or add more than one digit, repeat the steps from 7.

^{*6} To continue clearing another caller information, repeat the steps from 2.

^{*7} You can also press **SPEAKERPHONE** to make a call.

8.5.4. Storing the Phone Number (Pre-dialling/Redial List/Caller ID List)



- To exit the operation, press  any time.

*1 If you need correction, press CLEAR. The digit is cleared to the left, then enter numbers.

*2 If there is no item stored in the redial/caller ID list, the display shows






"No Stored Memory".

*3 If you need to make a correction, press RIGHT or LEFT to move cursor then clear a character by pressing CLEAR, and/or enter characters. Characters are cleared or added to the left of the flashing character. To enter characters, see Phonebook Character Table.


8.5.5. Hot Key (: Speed Dial)

You can assign the dialling buttons 1 through 9 as hot keys. You can choose 9 phone numbers from the phonebook.

Registering a Phone Number as a Hot Key

1  Press PHONEBOOK . ^{*1}	2  Search/Select desired item.	3  Search/Select "Reg. To Hot Key".	4  Search/Select desired dialling button number. ^{*2}
5  Search/Select "Save".			

Dialling with Hot Key

1 Press and hold the dialling button registered as a hot key.	2  Press TALK . ^{*3}
--	---

Clearing the Hot Key Registration

1 Press and hold the dialling button registered as a hot key.	2  Press RIGHT .	3  Select "Clear".	4  Search/Select "YES". ^{*4}
--	--	--	--

- To exit the operation, press  any time.

^{*1} If there is no item stored in the phonebook, the display shows

"No Stored Memory".

^{*2} If an item is already stored to a hot key, "✓" will be displayed on the left of the key number. If a hot key number with "✓" is selected, press RIGHT to select "Overwrite".

^{*3} You can also press **SPEAKERPHONE** to make a call.

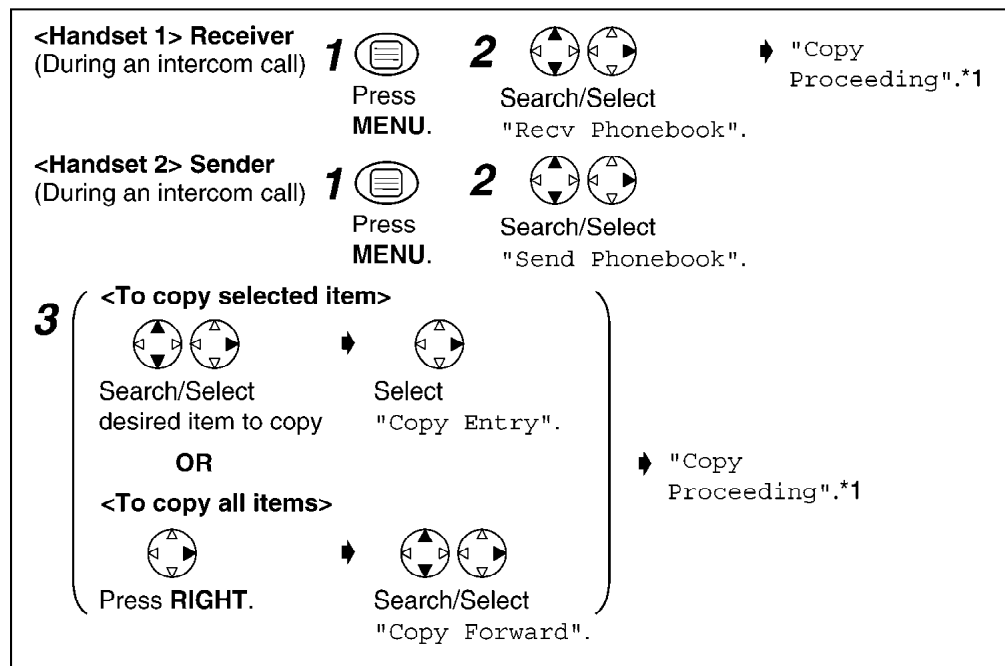
^{*4} Phonebook registration will be remained even hot key registration is cleared.

8.5.6. Phonebook Copy

You can copy phonebook information between handsets registered to the same base unit. The aphonebook copy must be performed while in intercom mode.

To Copy an item/All items in the Phonebook

For example, Handset 2 is copying an item from its phonebook to Handset 1.



- To cancel copying at any time, press **CLEAR** to return to the

intercom call or press  to return to the standby mode.

*1 If "Memory Full" is displayed, the receiver handset memory is full.

When copying is completed, a beep sounds and "Copy Complete" is displayed. After a few seconds, the display will return to the intercom call.

"Copy Incomplete" will display if the link is disconnected or if the

receiver handset memory is full. If "Copy Failure" is displayed, the receiver and/or sender did not prepare for copying within 60 seconds.

9. SMS Feature (Text Message)

You can send and receive text messages between other fixed and mobile phone that also support a compatible SMS feature and network, both national and international. The SMS feature is only available after subscription to Caller ID.

Note for service:

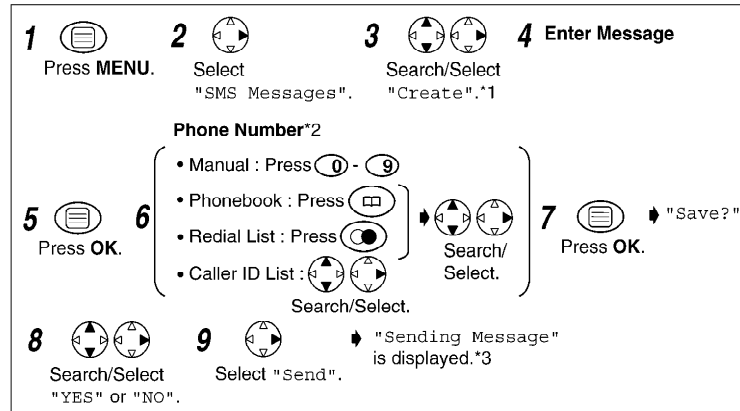
There are two types of SMS; one is Type1 and the other is Type2.

These types are different depending on the countries, and Type1 is assigned for KX-TCD455GM, KX-A145EXM.

SMS is not available between a Type1 Handset and a Type2 Handset.

9.1. Writing and Sending New Messages

You can write and send a new message. Each message can contain up to 459 characters.



*1 If the base unit does not have sufficient memory to send a message, the display will show "SMS Lists are full. Please clear Messages". The unit will then return to the standby mode. Up to 50 messages can be stored.

- You can change the input mode.

- If the base unit can store one more message "Use Last Text?" is displayed. You can choose whether to use the last message or not. If you want to use the last message, press **UP** to recall the last message.

*2 You can enter a phone number manually, from the phonebook, Caller ID or redial lists.

- If you try to send a message using a number over 20 digits long from one of the lists, "Invalid Number" is displayed and the display returns to "Enter Phone No".

*3 The display returns to the standby mode, then "Transferring Message" is displayed.

Text Entry

Button	Note
	Press to move the cursor.
to	Press to enter letters/numbers. (Items are added to the left of the cursor. If the cursor is at the beginning of a line, the item is added over the cursor.)
	Press to delete characters. (Characters are deleted to the left of the cursor. If the cursor is at the beginning of a line, the first character will be deleted.) Press and hold to delete all characters.
	Press to change between upper and lower case.
	Press to insert a blank space (except when in Numeric 0-9 character mode).
	Press to insert a symbol (except when in Numeric 0-9 character mode).
	Press to insert a number while entering characters. While entering characters, press REDIAL and then the number you require. To change back to letter mode, press REDIAL again.

Selecting the Input Mode

There are 5 text input modes: "LetterWise®" (default mode), Normal (ABC), Greek (ΑΒΓ), Extended (ÅÄÅ) and Numeric (0-9).

(While inputting a message)	1 Press PHONEBOOK .	2 Search/Select desired mode.*1
-----------------------------	-----------------------------	----------------------------------

*1 If "LetterWise®" is selected, you must select the language you require.

Press **UP** or **DOWN** to select language then press **RIGHT**. The display will return to the message.

Entering Text in "LetterWise®" Mode

"LetterWise®" is the default input mode. "LetterWise®" is a simplified text entry system. This system suggests to the user the most likely letter to follow the text entered previously.

Inserting Text in "LetterWise®" Mode
• Enter the letters of the word you want by pressing dialling button to .
• If the letter displayed is not correct, change the letter by pressing (possibly several times).
• Continue writing the word always checking that the letters displayed are correct and change them if necessary.
• To insert symbols, press dialling button . If the symbol you want does not appear, press repeatedly until the required symbol appears.

9.2. Reading/Displaying a Message in the Outgoing List

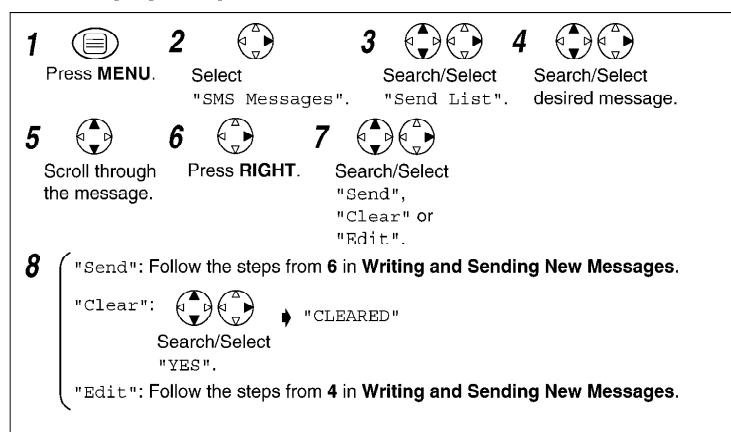
You can display all messages sent in time/date order. For this feature, you must set the clock and date.

1 Press MENU .	2 Select "SMS Messages".	3 Search/Select "Send List".	4 Search/Select desired message.
5 Scroll through the message.			

- In the outgoing message list, if the telephone number of the person you sent the message to is over 16 digits long, you can view the remaining digits by pressing dialling button .

9.3. Sending/Editing/Clearing a Message from/in the Outgoing List

You can send a stored outgoing message.



9.4. Receiving a Text Message

When a new message is being received, the icon flashes on the display in the standby mode and a tone sounds. If the ringer volume is set to off, the tone will not sound. When the message has been received, the display shows the following:



When this message is displayed and any button is pressed, the display returns to the standby mode and the icon displayed.

When the SMS message memory is full, the icon will flash **quickly**. No messages can be received if the memory is full.

10. DISASSEMBLY INSTRUCTIONS

10.1. Base Unit

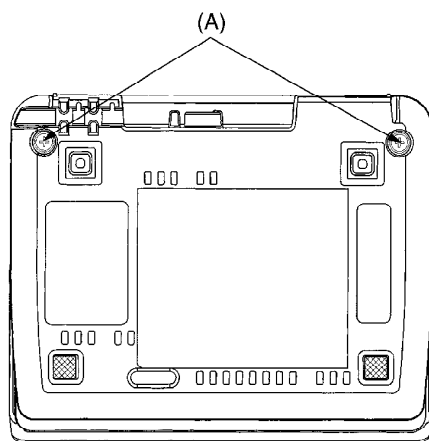


Fig. 1

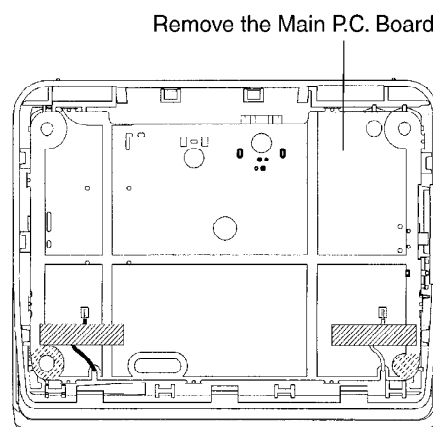


Fig. 2

Shown in Fig.-	To Remove	Remove
1	Lower Cabinet	Screws (2.6 × 12).....(A) × 2
2	Main P.C. Board	Main P.C. Board

10.2. Handset

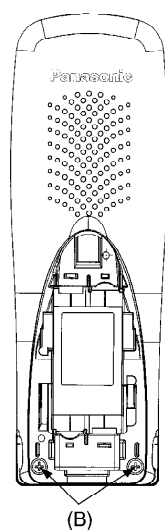


Fig. 3

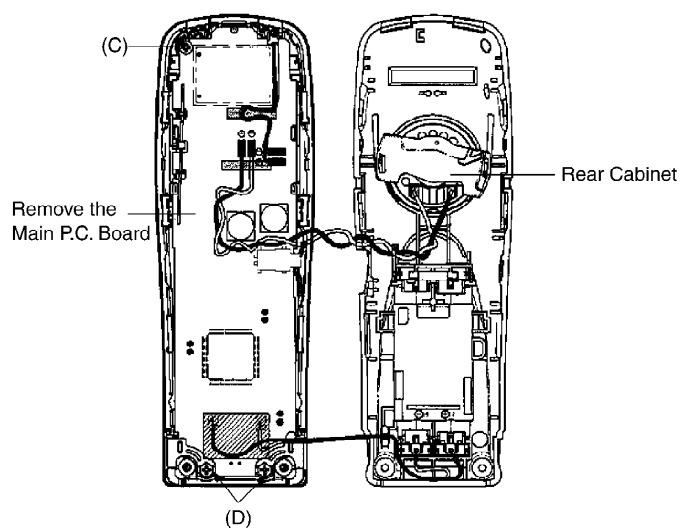
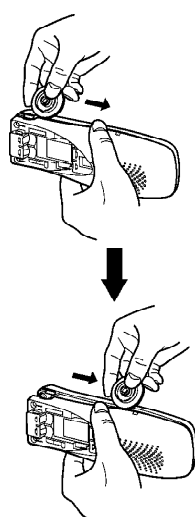
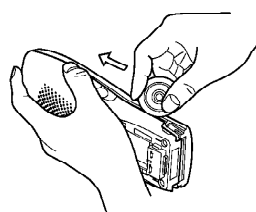


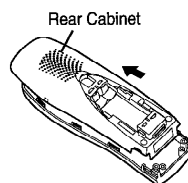
Fig. 4



Insert a JIG (PQDJ10006Y) between the Front and the Rear Cabinet, then pull it along the gap to open the Cabinet.



Likewise, open the other side of the Cabinet.



Remove the Rear Cabinet by pushing it upward.

Fig. 4

Shown in Fig.-	To Remove	Remove
3	Rear Cabinet	Screws (2 × 10).....(B) × 2
4	Rear Cabinet	Follow the procedure.
5	Main P.C. Board	Screw (2 × 8).....(C) × 1
		Screws (2 × 8).....(D) × 2
		Main P.C. Board

10.3. Charger Unit

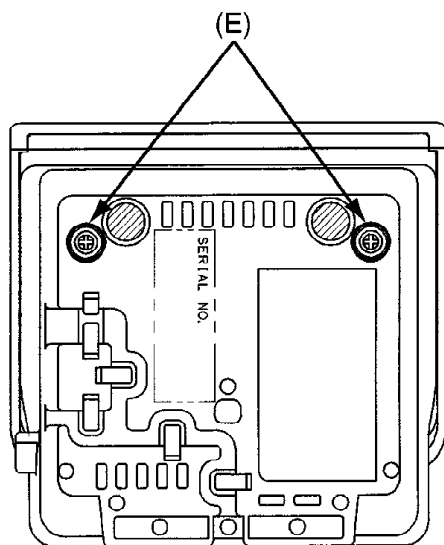


Fig. 6

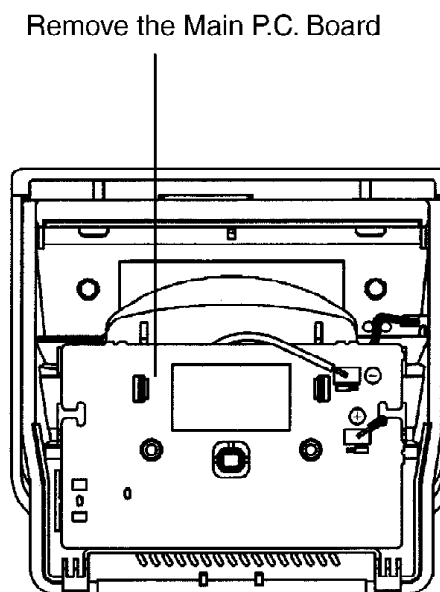


Fig. 7

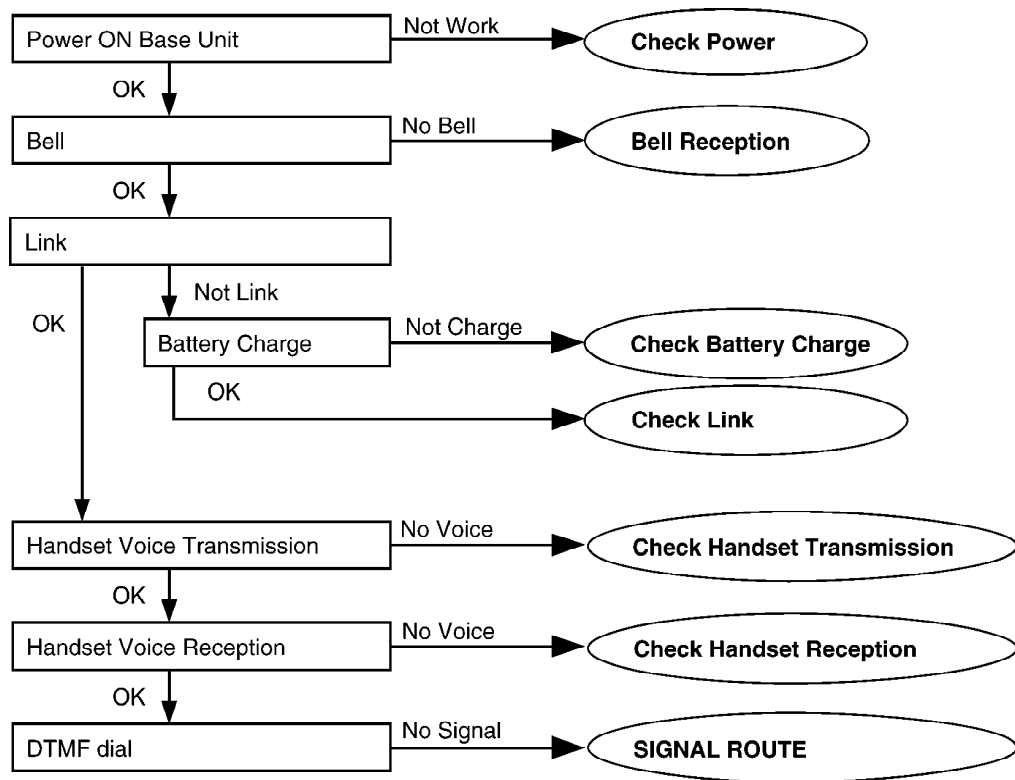
Shown in Fig.-	To Remove	Remove
6	Lower Cabinet	Screws (2.6 × 14).....(E) × 2
7	Main P.C. Board	Main P.C. Board

11. ASSEMBLY INSTRUCTIONS

11.1. Warning When Constructing the Base Unit

12. TROUBLESHOOTING GUIDE

Flow Chart



Cross Reference:

[Check Power \(\)](#)

[Bell Reception \(\)](#)

[Check Battery Charge \(\)](#)

[Check Link \(\)](#)

[Check Handset Transmission \(\)](#)

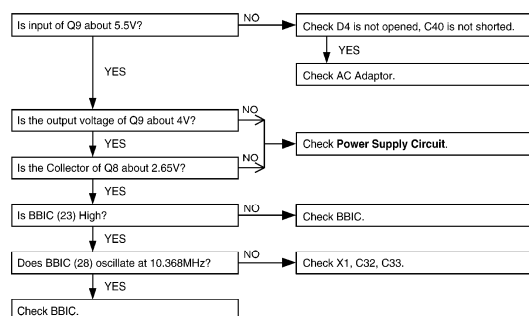
[Check Handset Reception \(\)](#)

[SIGNAL ROUTE \(\)](#)

12.1. Check Power

12.1.1. Base Unit

Is the AC Adaptor inserted into AC outlet? (Check AC Adaptor's specification.)



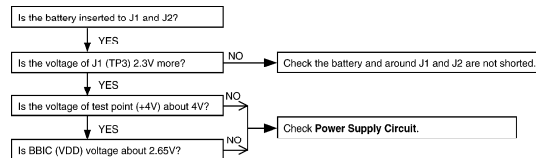
Cross Reference

Power Supply Circuit ()

Note:

BBIC is IC2.

12.1.2. Handset



Cross Reference

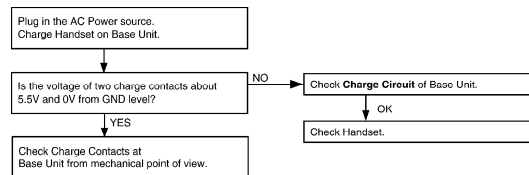
Power Supply Circuit/Reset Circuit ()

Note:

BBIC is IC1.

12.2. Check Battery Charge

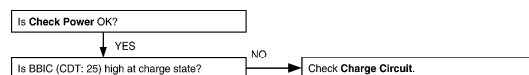
12.2.1. Base Unit



Cross Reference:

Charge Circuit ()

12.2.2. Handset



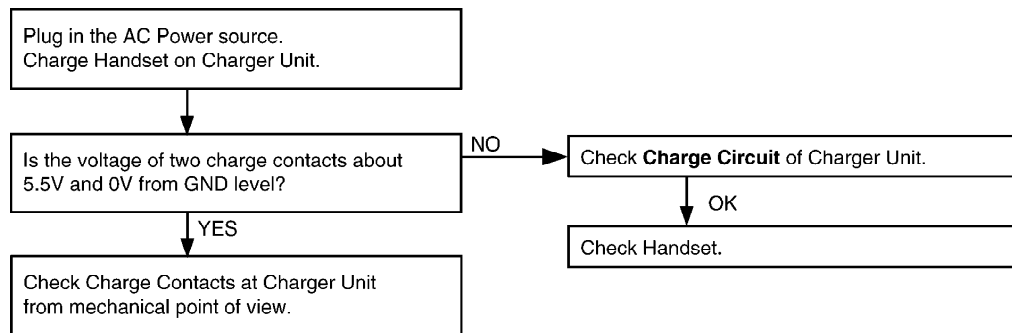
Cross Reference:

Check Power ()

Charge Circuit ()

Note:
BBIC is IC1.

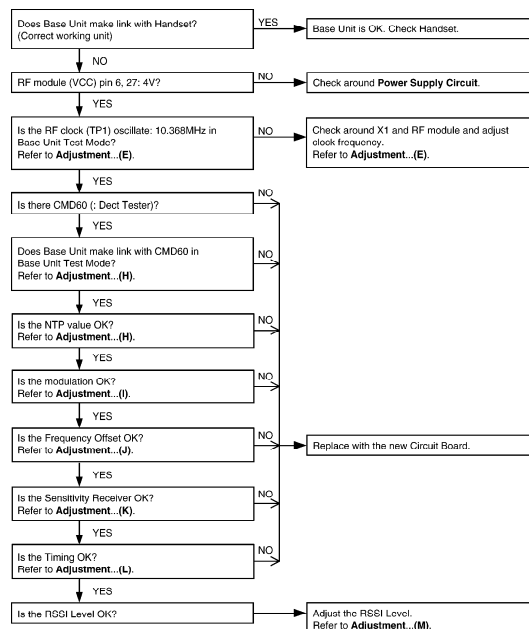
12.2.3. Charger Unit



Cross Reference:
Charge Circuit ()

12.3. Check Link

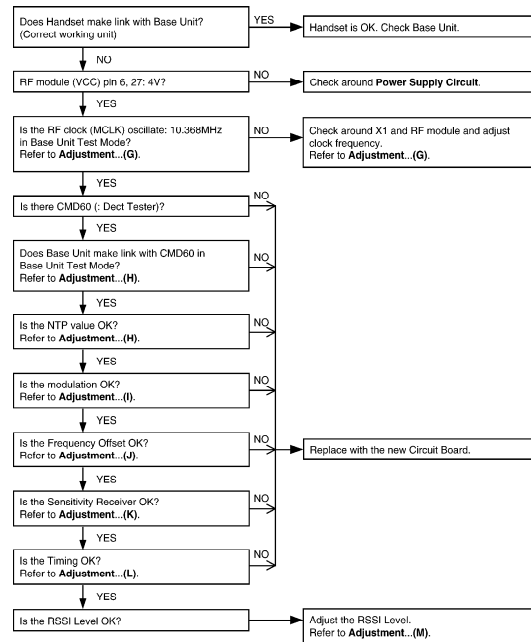
12.3.1. Base Unit



Cross Reference:

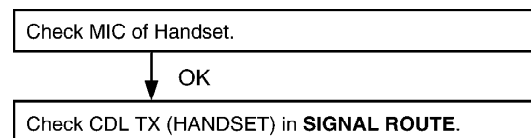
Power Supply Circuit () Adjustment (Base Unit) ()

12.3.2. Handset



Cross Reference Power Supply Circuit () Adjustment ()

12.4. Check Handset Transmission



Cross Reference: SIGNAL ROUTE ()

12.5. Check Handset Reception



Cross Reference:

HOW TO CHECK THE HANDSET SPEAKER ().
SIGNAL ROUTE ()

12.6. Check Caller ID

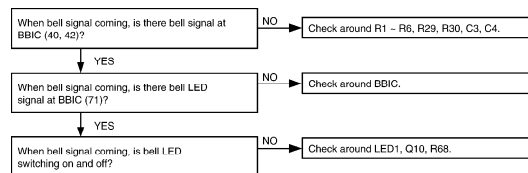
Check Caller ID in **SIGNAL ROUTE**.

Cross Reference:

SIGNAL ROUTE ()

12.7. Bell Reception

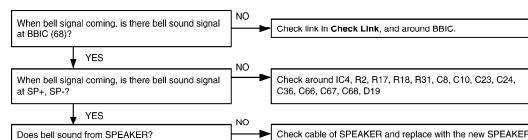
12.7.1. Base Unit



Note:

BBIC is IC2.

12.7.2. Handset



Cross Reference:

Telephone Line Interface ()
Check Link ()

Note:

BBIC is IC1.

13. CHECK PROCEDURE (BASE UNIT)

13.1. Preparation

13.1.1. Equipment Required

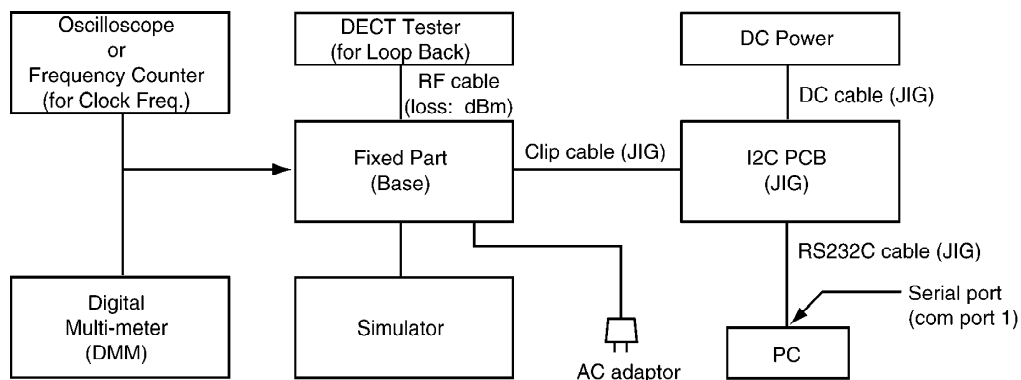
- DECT tester: Rohde & Schwarz, CMD 60 is recommended.
- Frequency counter: it must be precise to be able to measure 1Hz (precision; $\pm 4\text{ppm}$).
Hewlett Packard, 53131A is recommended.
- DC power: it must be able to output at least 1A current under 9V.
- Digital multi-meter (DMM): it must be able to measure voltage and current.
- Oscilloscope

13.1.2. JIGs and PC

- EEPROM serial JIGs
 1. I2C PCB: PQZZTCD705BX
 2. RS232C cable: PQZZ1CD705BX
 3. Clip cable: PQZZ2CD705BX
 4. DC cable: PQZZ3CD705BX
- PC which runs in DOS mode
- Batch file for setting: PQZZTCD455E

13.2. PC Setting

13.2.1. Connections



13.2.2. PC Setting

1. Open a window of MS-DOS mode from the start-up menu.
2. Change a directory to the one with "RTX_COM" contained.
3. Type "SET RTX_COM=1" from the keyboard (when COM port 1 is used for the connection).
4. Type "doskey".

Note:

See the table below for frequently used commands.

Command name	Function	Example
rdeeprom	Read the data of EEPROM	Type "rdeeprom 00 00 FF", and the data from address "00 00" to "FF" is read out.
readid	Read ID (RFPI)	Type "readid", and the registered ID is read out.
writeid	Write ID (RFPI)	Type "writeid 00 18 E0 0E 98", and the ID "0018 E0 0E 98" is written.
setfreq	adjust Frequency of RFIC	Type "setfreq nn nn".
hookoff	off-hook mode on Base	Type "hookoff".
hookon	on-hook mode on Base	Type "hookon".
Getchk	Read checksum	Type "getchk".
Wreeprom	write eeprom	Type "wreeprom 01 23 45". "01 23" is address and "45" is data to be written.
InitBsPIN.bat	Initial Base PIN to "0000"	Type "initBsPIN"

14. CHECK PROCEDURE (HANDSET)

14.1. Preparation

14.1.1. Equipment Required

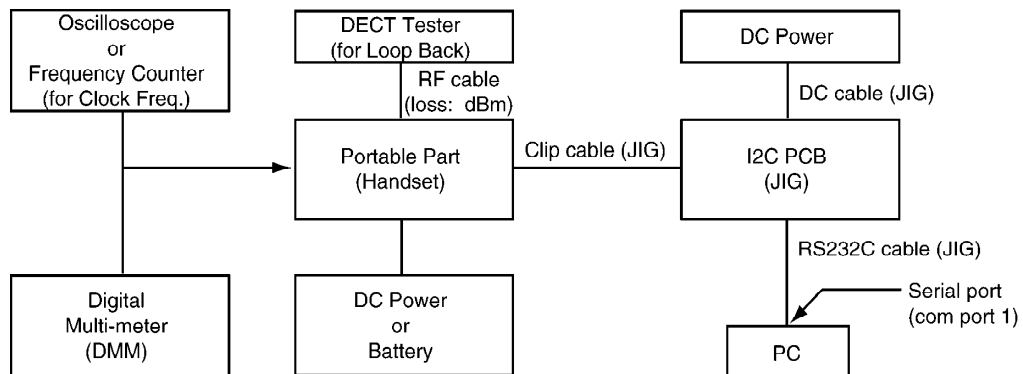
- DECT tester: Rohde & Schwarz, CMD 60 is recommended.
- Frequency counter: it must be precise to be able to measure 1Hz (precision; ± 4 ppm).
Hewlett Packard, 53131A is recommended.
- DC power: it must be able to output at least 1A current under 2.4V for Handset, 9V for JIG.
- Digital multi-meter (DMM): it must be able to measure voltage and current.
- Oscilloscope

14.1.2. JIGs and PC

- EEPROM serial JIGs
 1. I2C PCB: PQZZTCD705BX
 2. RS232C cable: PQZZ1CD705BX
 3. Clip cable: PQZZ2CD705BX
 4. DC cable: PQZZ3CD705BX
- PC which runs in DOS mode.
- Batch file for PC setting: PQZZTCD455E

14.2. PC Setting

14.2.1. Connections



14.2.2. PC Setting

1. Open a window of MS-DOS mode from the start-up menu.
2. Change a directory to the one with “RTX_COM” contained.
3. Type “SET RTX_COM=1” from the keyboard (when COM port 1 is used for the connection).
4. Type “doskey”.

Note:

See the table below for frequently used commands.

Command name	Function	Example
rdeeprom	Read the data of EEPROM	Type “rdeeprom 00 00 FF”, and the data from address “00 00” to “FF” is read out.
readid	Read ID (RFPI)	Type “readid”, and the registered ID is read out.
writeid	Write ID (RFPI)	Type “writeid 00 18 E0 0E 98”, and the ID “0018 E0 0E 98” is written.
setfreq	adjust Frequency of RFIC	Type “setfreq nn nn”.
Getchk	Read checksum	Type “getchk”.
Wreeprom	write eeprom	Type "wreeprom 01 23 45". "01 23" is address and "45" is data to be written.

15. ADJUSTMENTS (BASE UNIT AND CHARGER UNIT)

If your unit have below symptoms, adjust or confirm each item using remedy column from the table.

Symptom	Remedy
The base unit does not respond to a call from handset.	Make adjustments in item (I)~(M)
The base unit does not transmit or the transmit frequency is off.	Make adjustments in item (H)~(J), (L)
The transmit frequency is off.	Make confirmation in item (H)~(J), (L)
The transmit power output is low, and the operating distance between base unit and handset is less than normal.	Make confirmation in item
The reception sensitivity of base unit is low with noise.	Make confirmation in item
The transmit level is high or low.	Make adjustments in item
The reception level is high or low.	Make adjustments in item
The unit does not link.	Make confirmation in item
The unit cannot charge.	Make confirmation in item

* : Refer to **Adjustment (Base Unit)** ()

15.1. Adjustment (Base Unit)

Please follow the items below when BBIC or EEPROM or FLASH ROM are replaced.

	Items	Adjustment Point	Procedure*	
(A)	2.65V Supply Confirmation	-	1. Confirm that the voltage between TP187 and GND is $2.65V \pm 0.2V$.	IC C: C: C: C C: C X

	Items	Adjustment Point	Procedure*								
(B)	4.0V Supply Confirmation	-	1. Confirm that the voltage between TP91 and GND is 4.0V ± 0.2V.								
(C)	VBACK Status Confirmation	-	1. Confirm that the voltage between J102 and GND is 2.65V ± 0.2V.								
(D) *	BBIC Confirmation	-	1. BBIC Confirmation (Execute the command "getchk"). 2. Confirm the returned checksum value. Connection of checksum value and program number is shown below. ex.) <table><tr><th>checksum value</th><th>program number</th></tr><tr><td>32BB</td><td>D261ZA</td></tr><tr><td>4D2B</td><td>D261ZB</td></tr><tr><td>5559</td><td>D261ZC</td></tr></table>	checksum value	program number	32BB	D261ZA	4D2B	D261ZB	5559	D261ZC
checksum value	program number										
32BB	D261ZA										
4D2B	D261ZB										
5559	D261ZC										
(E) *	BBIC Clock Adjustment	TP1	1. Execute the command "deactmac". 2. Execute the command "conttx". 3. Input Command "rdeeprom_00_00_02", then you can confirm the current value. 4. Adjust the frequency of TP1 executing the command "setfreq 00 xx (where xx is the value)" so that the reading of the frequency counter is 10.368000MHz ± 3Hz.								

	Items	Adjustment Point	Procedure*
(F) *	Hookswitch Check with DC Characteristics	-	1. Connect J1 (Telephone Socket) to Tel-simulator which is connected with 600 Ω . 2. Set line voltage to 48V at on-hook condition and line current to 40mA at off-hook condition of normal telephone. 3. Execute the command "hookoff" 4. Confirm that the line current is 40mA \pm 5mA. 5. Execute the command "hookon". 6. Confirm that the line current is 0mA \pm 0.2mA.
(G) *	DTMF Generator Confirmation	-	1. Connect J1 (Telephone Socket) to DTMF tester. 2. Execute the command "hookoff" and "dtmf_up". 3. Confirm that the high frequency (1477.06Hz) group is -6.5dBm ~ -9.5dBm. 4. Execute the command "dtmf_lo". 5. Confirm that the low frequency (852.05Hz) group is -9.0dBm ~ -12.0dBm.

	Items	Adjustment Point	Procedure*	
(H) *	Transmitted Power Confirmation	-	<p>Remove the Antenna before starting step from 1 to 4.</p> <p>1. Configure the DECT tester (CMD60) as follows; <Setting></p> <ul style="list-style-type: none"> -Test mode: FP -Traffic Channel: 5 -Traffic Slot: 4 -Mode: Loopback -PMID: 0000 -Set the Cable Loss as 5dB. <p>2. Execute the command "testmode".</p> <p>3. Initiate connection from DECT tester. ("set up connect")</p> <p>4. Confirm that the NTP value at ANT is 20dBm ~ 25dBm.</p>	<p>I</p> <p>C/</p> <p>C/</p> <p>C/</p> <p>C</p> <p>D/</p> <p>C/</p> <p>R/</p> <p>C/</p> <p>C/</p> <p>C</p>

	Items	Adjustment Point	Procedure*	
(I)	Modulatoin Check and Adjustment	ANT	<p>Follow steps 1 to 3 of (H) above.</p> <p>4.Confirm that the B-Field Modulation is 340kHz/div ~ 402kHz/div using data type Fig31.</p> <p>5.Adjust the B-Field Modulation if required. (Execute the command "readmod" and "wrtmod xx", where xx is the value.)</p>	<p>I</p> <p>C</p> <p>C</p> <p>C</p> <p>C</p> <p>D</p> <p>C</p> <p>R</p> <p>C</p> <p>C</p> <p>C</p>

	Items	Adjustment Point	Procedure*	
(J)	Frequency Offset Confirmation	-	Follow steps 1 to 3 of (H) above. 4. Confirm that the frequency offset is $< \pm 40\text{kHz}$.	I C C C C D C R C C C

	Items	Adjustment Point	Procedure*	
(K)	Sensitivity Receiver Confirmation	-	<p>Follow steps 1 to 3 of (H) above.</p> <p>4.Set DECT tester power to -88dBm.</p> <p>5.Confirm that the BER is < 1000ppm.</p>	<p>I</p> <p>C/</p> <p>C/</p> <p>C/</p> <p>C</p> <p>D/</p> <p>C/</p> <p>R/</p> <p>C/</p> <p>C/</p> <p>C</p>

	Items	Adjustment Point	Procedure*	
(L)	Timing Confirmation	-	Follow steps 1 to 3 of (H) above. 4. Confirm that the Timing accuracy is $< \pm 5.0\text{ppm}$.	I C C C D C R C C C

	Items	Adjustment Point	Procedure*	
(M) *	RSSI Level Confirmation	-	<p>Follow steps 1 to 3 of (H) above.</p> <p>4..Set DECT tester power to -88dBm.</p> <p>5.Execute the command "readrssi".</p> <p>6. Confirm: 23 < returned value < 45 (hex)</p>	<p>I</p> <p>C/</p> <p>C/</p> <p>C/</p> <p>C</p> <p>D/</p> <p>C/</p> <p>R/</p> <p>C/</p> <p>C/</p> <p>C</p>

	Items	Adjustment Point	Procedure*
(O) *	Transmit Audio Check and Adjustment	ANT J1	<p>1. Configure the DECT tester (CMD60) as follows; <Setting></p> <p>-Test mode: FP -Mode: Normal -PMID: 0000</p> <p>2. Execute the command "testmode". 3. Initiate connection from DECT tester. 4. Execute the command "hookoff". 5. Execute the command "openau". 6. Connect J1 (Telephone Socket) to Tel-simulator which is connected with 600 Ω. 7. Set line voltage to 48V and line current to 40mA. 8. Input audio signal (30mVrms/1kHz tone) to DECT tester. <DECT tester setting></p> <p>-Scramble: On -AF Gen to ADPCM: On -AF Meter Input: AF Voltm -AF Gen Frequency: 1000Hz -AF Gen Level: 30mVrms</p> <p>9. Confirm hearing tone: 700mVrms \pm 150mVrms. 10. Adjust audio level if required. (Make sure current value using "getspkrgain". And then execute the command "setspkrgain xx", where xx is the value.) 11. Confirm that the audio distortion at 600R of Tel-simulator is < 5 %.</p>
(P)	Charging Check	-	<p>1. Connect Charge Contact 12 Ω /2W register between charge+ and charge-. 2. Measure and confirm voltage across the regigster is 2.3V \pm 0.2V.</p>

Note:

After the measuring, sock up the solder of TP.

* : **PC Setting** () is required beforehand.

The connection of adjustment equipment are as shown in **Adjustment Standard (Base Unit)** ().

15.2. Adjustment Standard (Base Unit)

When connecting the Simulator Equipments for checking, please refer to below.

15.2.1. Component View

Note:

(H) - (O) is referred to **ADJUSTMENTS (BASE UNIT AND CHARGER UNIT)** ()

15.2.2. Flow Solder Side View

Note:

(A) - (P) is referred to **ADJUSTMENTS (BASE UNIT AND CHARGER UNIT)** ()

15.3. Adjustment (Charger Unit)

	Items	Adjustment Point	Procedure
(A)	Charging Check	-	1. Connect Charge Contact 12 Ω /2W register between charge+ and charge-. 2. Measure and confirm voltage across the regigster is $2.7V \pm 0.2V$.

Note:

After the measuring, sock up the solder of TP.

The connection of adjustment equipment are as shown in **Adjustment Standard (Charger Unit)** ().

15.4. Adjustment Standard (Charger Unit)

When connecting the Simulator Equipments for checking, please refer to below.

15.4.1. Flow Solder Side View

Note:

(A) is referred to **ADJUSTMENTS (BASE UNIT AND CHARGER UNIT)** ()

16. ADJUSTMENTS (HANDSET)

If your unit have below symptoms, adjust or confirm each item using remedy column from the table.

Symptom	Remedy
The movement of Battery Low indicator is wrong.	Make confirmation in item (E), (F)
The handset does not respond to a call from base unit.	Make adjustments in item (G), (I)~(M)
The handset does not transmit or the transmit frequency is off.	Make adjustments in item (G)~(J), (L)
The transmit frequency is off.	Make confirmation in item (G)~(J), (L)
The transmit power output is low, and the operating distance between base unit and handset is less than normal.	Make confirmation in item
The reception sensitivity of base unit is low with noise.	Make confirmation in item
Does not link between base unit and handset.	Make confirmation in item (G)~(M)
The reception level is high or low.	Make adjustments in item
The transmit level is high or low.	Make adjustments in item

* : Refer to **Adjustment** ()

16.1. Adjustment

Please follow the items below when BBIC or EEPROM or FLASH ROM are replaced.

	Items	Adjustment Point	Procedure*												
(A)	4.0V Supply Confirmation	-	1. Confirm that the consumption current is < 200mA , that is, there is no short circuit. 2. Confirm that the voltage between test point “+4V” and GND is 4.1V ± 0.2V.												
(B)	BBIC Confirmation	-	1. BBIC Confirmation (Execute the command "getchk"). 2. Confirm the returned checksum value. Connection of checksum value and program number is shown below. ex.) <table><tr><th>checksum value</th><th>program number</th></tr><tr><td>BA5E</td><td>D271ZA</td></tr><tr><td>B8C3</td><td>D271ZB</td></tr><tr><td>BB70</td><td>D271ZC</td></tr><tr><td>FAA3</td><td>D271ZD</td></tr><tr><td>0478</td><td>D271ZE</td></tr></table>	checksum value	program number	BA5E	D271ZA	B8C3	D271ZB	BB70	D271ZC	FAA3	D271ZD	0478	D271ZE
checksum value	program number														
BA5E	D271ZA														
B8C3	D271ZB														
BB70	D271ZC														
FAA3	D271ZD														
0478	D271ZE														
(C)	Charge Control Check & Charge Current Monitor Confirmation	-	1. Apply 6V between TP5(+) and TP6(-) with current limit of PSU to 200mA. 2. Confirm that the charge current is ON/OFF. 3. SW to decrease current limit of PSU to 100mA. 4. Confirm that the charge current is stable.												

	Items	Adjustment Point	Procedure*	
(D) *	Charge Detection (OFF) Confirmation	-	1. Stop supplying 6V to TP5(+) and TP6(-). 2. Execute the command "charge". 3. Confirm that the returned value is 0x00 (hex).	IC Q C R
(E) *	Battery Monitor Confirmation	-	1. Apply 2.3V \pm 0.005V between TP3(+) and TP4(-). 2. Execute the command "readbatt". 3. Confirm: 95 < returned value < A0 (Hex) 4. Execute the command "WRTBAT2 XX".	IC Q C R
(F)	Battery low Confirmation	-	1. Apply 2.40V between TP3(+) and TP4(-). 2. Confirm that there is no Speaker sound (Battery low alarm). 3. Apply 2.20V between TP3(+) and TP4(-). 4. Confirm that there is Speaker sound (Battery low alarm).	II R C R R C C
(G) *	BBIC Clock Adjustment	MCLK	1. Execute the command "conttx". 2. Adjust the frequency of MCLK executing the command "setfreq 00 xx (where xx is the value)" so that the reading of the frequency counter is 10.368000MHz \pm 3MHz.	I C

	Items	Adjustment Point	Procedure*	
(H) *	Transmitted Power Confirmation	TP15	<p>Remove the Antenna before starting step from 1 to 5.</p> <p>1. Configure the DECT tester(CMD60) as follows; <Setting></p> <p>-Test mode: PP -RFPI: 0102030405 -Traffic Channel: 5 -Traffic Slot: 4 -Mode: Loopback</p> <p>2. Execute the command "testmode". 3. Execute the command "regcmd60" 4. Initiate connection from DECT tester. 5. Confirm that the NTP value at A201 (TP15) is 20dBm ~ 25dBm</p>	C C F C C
(I)	Modulatoion Check and Adjusment	TP15	<p>Follow steps 1 to 4 of (H) above.</p> <p>5. Confirm that the B-Field Modulation is 340kHz/div ~ 402kHz/div using data type Fig31. 6. Adjust the B-Field Modulation if required. (Execute the command "Readmod" and "Writemod xx", where xx is the value.)</p>	C C F C C
(J)	Frequency Offset Confirmation	-	<p>Follow steps 1 to 4 of (H) above.</p> <p>5. Confirm that the frequency offset is $< \pm 40\text{kHz}$.</p>	C C F C C
(K)	Sensitivity Receiver Confirmation	-	<p>Follow steps 1 to 4 of (H) above.</p> <p>5. Set DECT tester power to -88dBm. 6. Confirm that the BER is $< 1000\text{ppm}$.</p>	C C F C C

	Items	Adjustment Point	Procedure*	
(L)	Timing Confirmation	-	Follow steps 1 to 4 of (H) above. 5. Confirm that the Timing accuracy is $< \pm 10\text{ppm}$.	C C F C C
(M) *	RSSI Level Confirmation	-	Follow steps 1 to 4 of (H) above. 5. Set DECT tester power to -88dBm. 6. Execute the command "readrssi" 7. Confirm: $23 < \text{returned value} < 45$ (hex).	C C F C C
(N) *	Receive Audio Check and Confirmation	TP15	1. Configure the DECT tester (CMD60) as follows; <Setting> -Test mode: PP -Mode: Nomal -RFPI: 0102030405 2. Execute the command "testmode". 3. Execute the command "regcmd60" 4. Initiate connection from DECT tester. 5. Execute the command "openaudio". 6. Confirm that the value of EEPROM address "34A" is "02". (If the value is not "02" (by User), set "02" and power off and power on, and return to clause 2.) 7. Input audio signal (50mVrms/1kHz tone) from DECT tester. <DECT tester setting> -Scramble: On -AF Gen to ADPCM: On -AF Meter Input: AF Voltm -AF Gen Frequency: 1000Hz -AF Gen Level: 50mVrms 8. Confirm hearing tone: $300\text{mV} \pm 250\text{mV}$ (Just check Audio path) 9. Confirm that the audio distortion with DECT tester is $< 5\%$.	C C F C C C C R: L

	Items	Adjustment Point	Procedure*	
(O)	Transmit Audio Check and Confirmation	TP15	<p>1. Configure the DECT tester (CMD60) as follows; <Setting></p> <ul style="list-style-type: none"> -Test mode: FP -Mode: Normal -RFPI: 0102030405 <p>2. Execute the command "testmode".</p> <p>3. Execute the command "regcmd60".</p> <p>4. Initiate connection from DECT tester.</p> <p>5. Execute the command "openaudio".</p> <p>6. Confirm that the value of EEPROM address "34A" is "02". (If the value is not "02" (by User), set "02" and power off and power on, and return to clause 2.)</p> <p>7. Input audio signal (30mVrms/1kHz tone) to DECT tester. <DECT tester setting></p> <ul style="list-style-type: none"> -Scramble: On -AF Gen to ADPCM: Off -AF Meter Input: ADPCM -AF Gen Frequency: 1000Hz -AF Gen Level: 30mVrms <p>8. Confirm hearing tone: 300mV ± 250mV (Just check Audio path)</p> <p>9. Confirm that the audio distortion with DECT tester is < 5 %.</p>	C C F C C C C R C C I

Note:

After the measuring, sock up the solder of TP.

* : **PC Setting** () is required beforehand.

The connection of adjustment equipment are as shown in **Adjustment Standard (Handset)** ().

16.2. Adjustment Standard (Handset)

When connecting the Simulator Equipments for checking, please refer to below.

Note:

(A) - (P) is referred to **ADJUSTMENTS (HANDSET)** ()

17. RF SPECIFICATION

17.1. Base Unit

Item	Value	Refer to -. *	Remar
TX Power	20 dBm ~ 25 dBm	Adjustment (Base Unit) (H)	
Modulation	340 kHz/div ~ 402 kHz/div	Adjustment (Base Unit) (I)	Data type:
Frequency Offset	-40 kHz ~ +40 kHz	Adjustment (Base Unit) (J)	
RX Sensitivity	< 1000 ppm	Adjustment (Base Unit) (K)	
Timing Accuracy	< ± 5.0 ppm	Adjustment (Base Unit) (L)	
RSSI Level	0x34 hex ± 10 hex	Adjustment (Base Unit) (M)	

* : Refer to [Adjustment \(Base Unit\) \(\)](#)

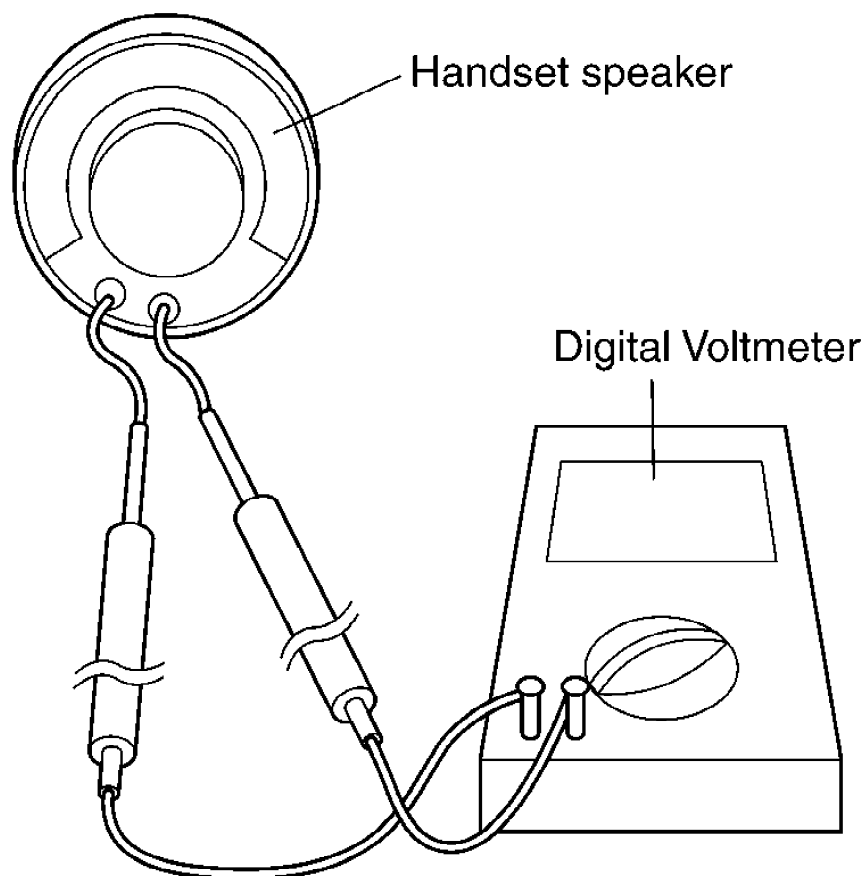
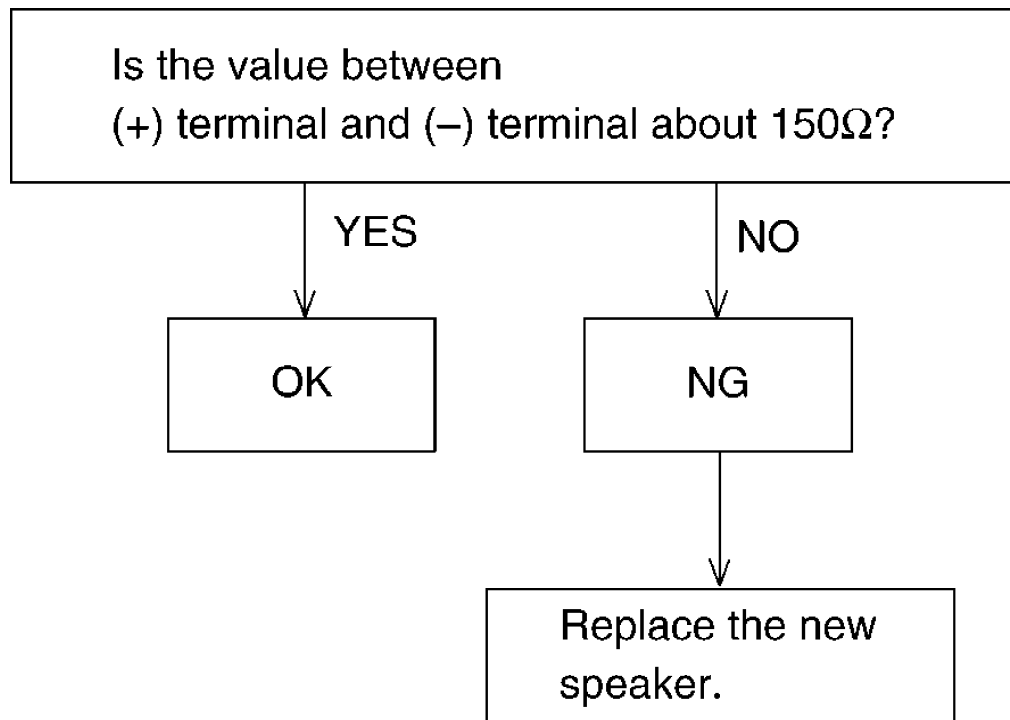
17.2. Handset

Item	Value	Refer to -. **	Remar
TX Power	20 dBm ~ 25 dBm	Adjustment (Base Unit) (H)	
Modulation	340 kHz/div ~ 402 kHz/div	Adjustment (Base Unit) (I)	Data type:
Frequency Offset	-40 kHz ~ +40 kHz	Adjustment (Base Unit) (J)	
RX Sensitivity	< 1000 ppm	Adjustment (Base Unit) (K)	
Timing Accuracy	< ± 10 ppm	Adjustment (Base Unit) (L)	
RSSI Level	0x34 hex ± 10 hex	Adjustment (Base Unit) (M)	

** : Refer to [Adjustment \(\)](#)

18. HOW TO CHECK THE HANDSET SPEAKER

1. Prepare the digital voltmeter, and set the selector knob to ohm meter.
2. Put the probes at the speaker terminals as shown below.



19. FREQUENCY TABLE (MHz)

Channel No	BASE UNIT		HANDSET	
	Transmit Frequency	Receive Frequency	Transmit Frequency	Receive Fr
1	1897.344	1897.344	1897.344	1897.3
2	1895.616	1895.616	1895.616	1895.6
3	1893.888	1893.888	1893.888	1893.8
4	1892.160	1892.160	1892.160	1892.1
5	1890.432	1890.432	1890.432	1890.4
6	1888.704	1888.704	1888.704	1888.7
7	1886.976	1886.976	1886.976	1886.9
8	1885.248	1885.248	1885.248	1885.2
9	1883.520	1883.520	1883.520	1883.5
10	1881.792	1881.792	1881.792	1881.7

Note:

Channel No. 10: In the Test Mode on Base Unit and Handset.

20. BLOCK DIAGRAM (BASE UNIT)

21. CIRCUIT OPERATION (BASE UNIT)

21.1. Outline

Base Unit consists of the following ICs as shown in **BLOCK DIAGRAM (BASE UNIT)** ().

- DECT BBIC (Base Band IC): IC2
- Handling all the audio, signal and data processing needed in a DECT base unit
- Controlling the DECT specific physical layer and radio section (Burst Module Controller section)
- ADPCM codec filter for speech encoding and speech decoding (DSP section)
- Echo-cancellation and Echo-suppression (DSP section)
- Any tones (tone, sidetone, ringing tone, etc.) generation (DSP section)
- DTMF receiver (DSP section)
- Clock Generation for RF Module
- ADC, DAC, timer, and power control circuitry
- All interfaces (ex: RF module, EEPROM, LED, Analog Front End, etc.)
- RF Module: IC3
- PLL Oscillator

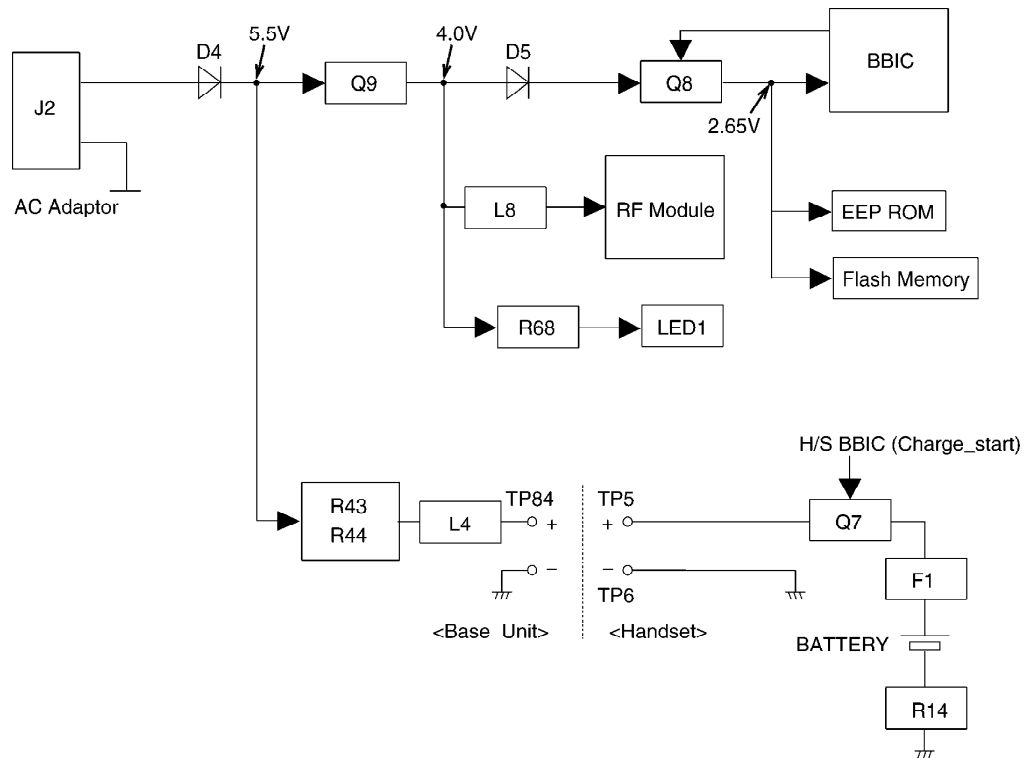
- Detector
- Compress/Expander
- First/Second Mixer
- Amplifier for transmission and reception
- EEPROM: IC1
- Temporary operating parameters (for RF, etc.)
- Additionally,
- Power Supply Circuit (+4.0V, +2.65V output)
- Crystal Circuit (10.368MHz)
- Charge Circuit
- Telephone Line Interface Circuit

21.2. Power Supply Circuit

The power is supplied to the DECT BBIC, RF Module, EEPROM, Relay Coil, LED and Charge Contact from AC Adaptor (+6V) as shown in Fig.101. The power supply is as follows;

- DECT BBIC (IC2): J2(+6V) → D4 → Q9 → D5 → Q8 → IC2
- RF Module (IC3): J2(+6V) → D4 → Q9 → L8 → IC3
- EEPROM (IC1): J2(+6V) → D4 → Q9 → D5 → Q8 → IC1
- Flash Memory (IC4): J2(+6V) → D4 → Q9 → D5 → Q8 → IC4
- LED (LED1): J2(+6V) → D4 → Q9 → R68 → LED1
- Charge Contact (TP84): J2(+6V) → D4 → R43, R44 → L4 → TP84

<Fig.101>



21.3. Telephone Line Interface

<Function>

- Bell signal detection
- Clip signal detection
- ON/OFF hook circuit
- Audio circuits

Bell & Clip (: Calling Line Identification Presentation: Caller ID) signal detection:

In the standby mode, Q2 is open to cut the DC loop current and decrease the ring load.

When ring voltage appears at the TP3 (A) and TP40 (B) leads (when the telephone rings), the signal is transferred as follows;

- A → C4 → R2 → R29 → IC2 (DLP) [BELL & CLIP]
- B → C3 → R1 → R30 → IC2 (DLN) [BELL & CLIP]

ON/OFF hook circuit:

In the standby mode, Q2 is open, and connected as to cut the DC loop current and to cut the voice signal. The unit is consequently in an on-hook condition.

When IC2 detects a ring signal or press the TALK Key onto the handset, Q3 turns on and then Q2 turns on, thus providing an off-hook condition (active DC current flow through the circuit) and the following signal flow is for the loop current.

- A → R77 → D2 → Q2 → R8 → Q3 → D2 → B [OFF HOOK]

21.4. Transmitter/Receiver

Base Unit and Handset mainly consist of RF Module and DECT BBIC.

Base Unit and Handset transmit/receive voice signal and data signal through the antenna on carrier frequency.

Signal Pass:

*Refer to **SIGNAL ROUTE** ().

21.4.1. Transmitter Block

The voice signal input from the TEL LINE interface goes to RF Module (IC3) through DECT BBIC (IC2) as shown in **BLOCK DIAGRAM (BASE UNIT)** ().

The voice signal passes through the analog part of IC2 where it is amplified and converted to a digital audio stream signal. The burst switch controller processes this stream performing encryption and scrambling, adding the various other fields to produce the GAP (Generic Access Profile) standard DECT frame, assigning to a time slot and channel etc.

In IC3, the carrier frequency is changing, and frequency modulated RF signal is generated and amplified, and radiated from antenna. Handset detects the voice signal or data signal in the circuit same as the following explanation of Receiver Block.

21.4.2. Receiver Block

The signal of 19.2 MHz band (18.81792 MHz ~ 18.97344 MHz) which is input from antenna is input to IC3 as shown in **BLOCK DIAGRAM (BASE UNIT)** ().

In IC3, the signal of 19.2 MHz band is downconverted to 864 kHz signal and demodulated, and goes to IC2 as GAP (Generic Access Profile) standard DECT frames. It passes through the decoding section burst switch controller where it separates out the frame information and performs de-encryption and de-scrambling as required. It then goes to the DSP section where it is turned back into analog audio. This is amplified by the analog front end, and goes to the TEL LINE Interface.

22. BLOCK DIAGRAM (HANDSET)

23. CIRCUIT OPERATION (HANDSET)

23.1. Outline

Handset consists of the following ICs as shown in **BLOCK DIAGRAM (HANDSET)** ().

- DECT BBIC (Base Band IC): IC1
- All data signals (forming/analyzing ACK or CMD signal)
- All interfaces (ex: Key, Detector Circuit, Charge, DC/DC Converter,

- EEPROM, LCD)
- RF Module: IC10
- PLL Oscillator
- Detector
- Compress/Expander
- Amplifier for transmission and reception

23.2. Power Supply Circuit/Reset Circuit

Circuit Operation:

When power on the Handset, the voltage is as follows;

BATTERY(2.2 V ~ 2.6V: TP3) → +4V(4V) → IC10(6, 27), D20 → IC1(35) → IC1(37, 22, 1, 84, 61) (2.65V)

The Reset signal generates IC1,C58 and 2.65V.

23.3. Charge Circuit

Circuit Operation:

When charging the handset on the Base Unit, the charge current is as follows;

DC+(5.5V ~ 6V) → D4 → R43, R44 → L4 → CHARGE+(Base) → CHARGE+(Handset) → Q7 → F1 → BATTERY+ ... Battery ... BATTERY- → R14 → GND → CHARGE-(Handset) → CHARGE-(Base) → GND → DC-(GND)

In this way, the BBIC on Handset detects the fact that the battery is charged.

The charge current is controlled by switching Q7 of Handset.

Refer to Fig.101 in [Power Supply Circuit](#) ().

23.4. Battery Low/Power Down Detector


Circuit Operation:

"Battery Low" and "Power Down" are detected by BBIC which check the voltage from battery.

The detected voltage is as follows;

- Battery Low

Battery voltage: $V(\text{Batt}) < 2.3\text{V}$

The BBIC detects this level and " starts flashing and "battery alarm" starts ringing.

- Power Down

Battery voltage: $V(\text{Batt}) < 2.2\text{V}$

The BBIC detects this level and power down.

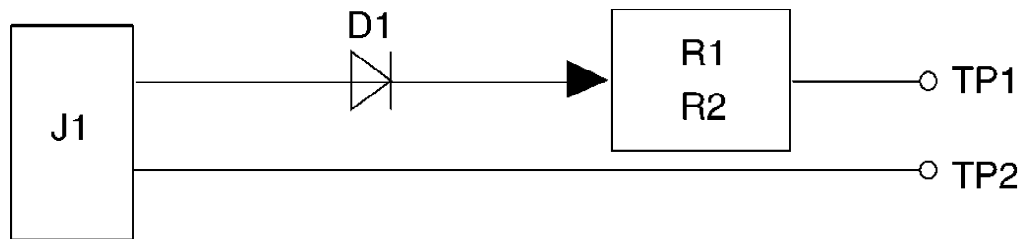
23.5. Speakerphone and Headset Jack

The hands-free loudspeaker at SP+ and SP- is used to generate the ring alarm. IC4 is used to switch off the telephone loudspeaker and is used to amplify the signal to drive the hands-free loudspeaker. They are selected using the SP_AMP line from pin 69 of the BBIC. 2.5mm headset jack is also available.

24. CIRCUIT OPERATION (CHARGER UNIT)

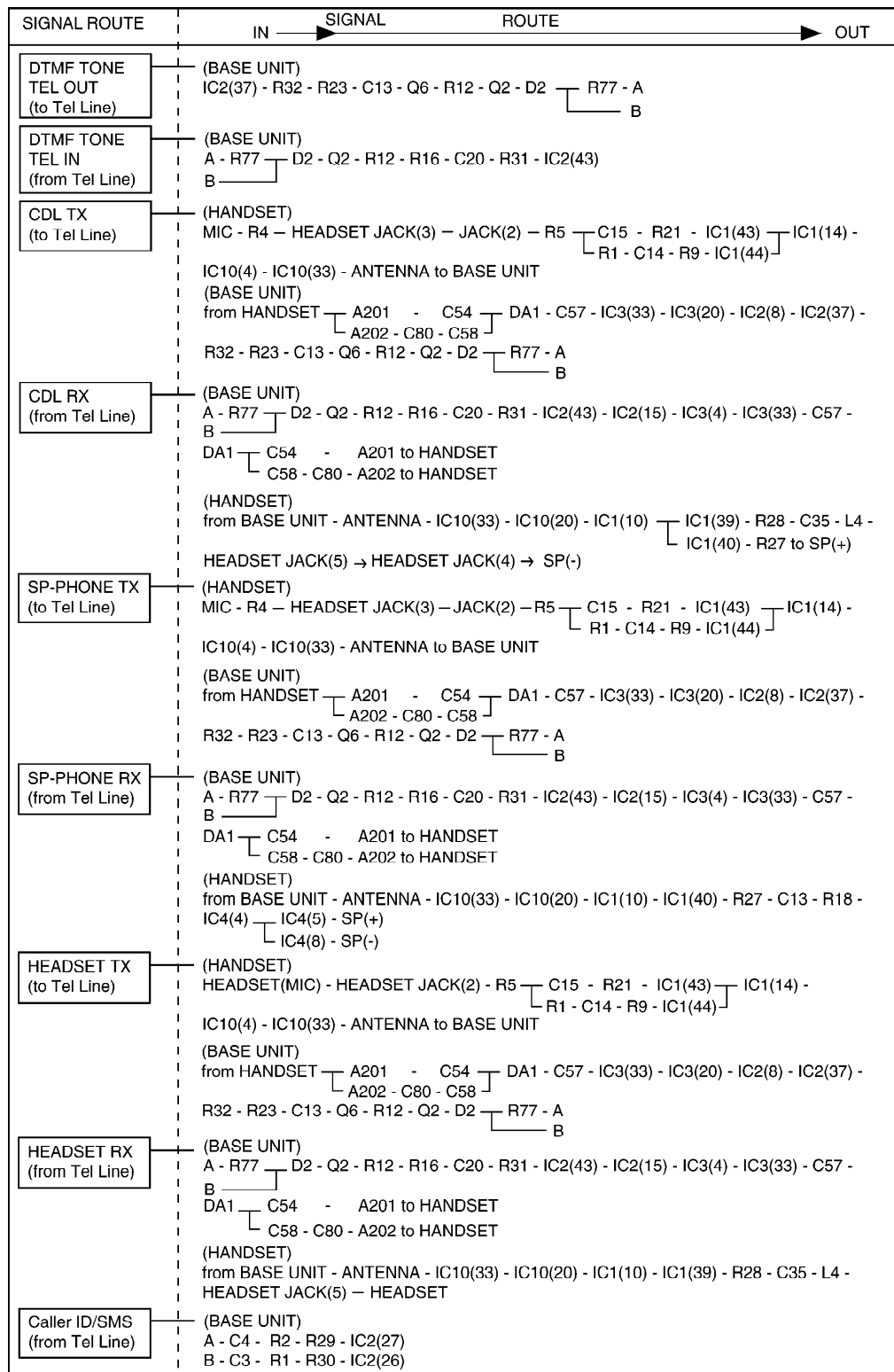
24.1. Power Supply Circuit

The power supply is as shown.



AC Adaptor

25. SIGNAL ROUTE



26. CPU DATA (BASE UNIT)

26.1. IC2 (BBIC)

Pin	Descriptiojn	I/O	Hi	Hi-z	Low	Remarks
1	VDD	-	-	-	-	-
2	VSS	-	-	-	-	-
3	Data Bus	D.I/O	-	-	-	for Flash Memory
4	PA_Driver_Amp	D.O	PA-ON	-	PA-OFF	-
5	Data Bus	D.I/O	-	-	-	for Flash Memory
6	TX/RX SW	D.O	TX	-	RX	-
7	Data Bus	D.I/O	-	-	-	for Flash Memory
8	RX Data	D.I	Active	-	Active	-
9	Data Bus	D.I/O	-	-	-	for Flash Memory
10	PLL Strobe	D.O	Normal	-	Latch	-
11	Data Bus	D.I/O	-	-	-	for Flash Memory
12	PLL Data	D.O	Active	-	Active	-
13	PLL Clk	D.O	Active	-	Active	-
14	Address Bus	D.O	-	-	-	for Flash Memory
15	TX Data	A.O	Active	-	Active	-
16	Address Bus	D.O	-	-	-	for Flash Memory
17	(NO USE)	D.O	-	-	-	-
18	Address Bus	D.O	-	-	-	for Flash Memory
19	Address Bus	D.O	-	-	-	for Flash Memory
20	RF System Clk	D.O	Active	-	Active	-
21	VDD	-	-	-	-	-
22	VSS	-	-	-	-	-
23	RESET	A.I	Normal	-	Reset	-
24	VDDPM	A.O	-	-	-	-
25	VSSO	D.I	-	-	-	-
26	(NO USE)	-	-	-	-	-
27	LOAD	A.I	-	-	-	-
28	XTAL	A.I	-	-	-	10.368MHz
29	NC	-	-	-	-	-
30	VDDLRL	A.I	-	-	-	-
31	LRB	D.I	-	-	-	-
32	NC	-	-	-	-	-
33	VDDA	-	-	-	-	-
34	VSSA	-	-	-	-	-
35	(NO USE)	-	-	-	-	-
36	Audio Out N	A.O	-	-	-	-
37	Audio Out P	A.O	-	-	-	-

Pin	Descriptiojn	I/O	Hi	Hi-z	Low	Remarks
38	(NO USE)	-	-	-	-	-
39	Bandgap Ref	A.I	-	-	-	-
40	Differential Line P	A.I	-	-	-	for Bell Clip
41	(NO USE)	-	-	-	-	-
42	Differential Line N	A.I	-	-	-	for Bell Clip
43	Audio In N	A.I	-	-	-	-
44	(NO USE)	-	-	-	-	-
45	ADC Ref	A.I	-	-	-	-
46	RSSI	A.I	-	-	-	-
47	(NO USE)	-	-	-	-	-
48	AD2	A.I	-	-	-	for Polarity
49	AD3	A.I	-	-	-	for Polarity
50	(NO USE)	-	-	-	-	-
51	PX.0	D.I	(I_PU)	-	-	-
52	Address Bus	D.O	-	-	-	for Flash Memory
53	(NO USE)	D.I	(I_PU)	-	-	-
54	Address Bus	D.O	-	-	-	for Flash Memory
55	(NO USE)	D.I	(I_PU)	-	-	-
56	Address Bus	D.O	-	-	-	for Flash Memory
57	(NO USE)	D.I	(I_PU)	-	-	-
58	Address Bus	D.O	-	-	-	for Flash Memory
59	VDD	-	-	-	-	-
60	VSS	-	-	-	-	-
61	Address Bus	D.O	-	-	-	for Flash Memory
62	Address Bus	D.O	-	-	-	for Flash Memory
63	Serial Data(I2C)	D.I/O	Data	-	Data	-
64	Serial Clk(I2C)	D.I/O	Active	-	Active	-
65	Address Bus	D.O	-	-	-	for Flash Memory
66	Address Bus	D.O	-	-	-	for Flash Memory
67	MODE	D.I	-	-	(Fixed)	-
68	WR	D.O	-	-	Write IC4	for Flash Memory
69	R2/P1.7	D.O	-	-	(Fixed)	-
70	Address Bus	D.O	-	-	-	for Flash Memory
71	Bell/Paging LED	D.O	LED ON	-	LED OFF	-

Pin	Descriptiojn	I/O	Hi	Hi-z	Low	Remarks
72	VBACK	A.I	-	-	-	-
73	VSS	-	-	-	-	-
74	Address Bus	D.O	-	-	-	for Flash Memory
75	Address Bus	D.O	-	-	-	for Flash Memory
76	DSPIN/P1.O	D.I	-	-	(Fixed)	
77	Address Bus	D.O	-	-	-	for Flash Memory
78	DSPOUT/P1.1	D.I	(Fixed)	-	-	
79	Address Bus	D.O	-	-	-	for Flash Memory
80	DSPCLK/P1.2	D.I	-	-	(Fixed)	
81	Address Bus	D.O	-	-	-	for Flash Memory
82	DSPFRM/P1.3	D.O	-	-	(Fixed)	
83	OE	D.O	-	-	Read IC4	for Flash Memory
84	VSS	-	-	-	-	-
85	VDD	-	-	-	-	-
86	Address Bus	D.O	-	-	-	for Flash Memory
87	Key IN	D.I	No Key	-	Key	-
88	(NO USE)	D.I	-	-	(I PD)	-
89	CE	D.O	-	-	IC4 Active	for Flash Memory
90	(NO USE)	D.O	-	-	-	-
91	(NO USE)	D.O	-	-	-	-
92	Data Bus	D.I/O	-	-	-	for Flash Memory
93	(NO USE)	D.I	-	-	(I PD)	-
94	(NO USE)	D.I	-	-	(I PD)	-
95	HOOK CTRL	D.O	Make		Break	-
96	Data Bus	D.I/O	-	-	-	for Flash Memory
97	(NO USE)	D.O	-	-	-	-
98	Data Bus	D.I/O	-	-	-	for Flash Memory
99	ANT1	D.O	ANT1 ON	-	ANT1 OFF	-
100	ANT2	D.O	ANT2 ON	-	ANT2 OFF	-

Note:

I_PU; Internal Pull-Up, I_PD; Internal Pull-Down

27. CPU DATA (HANDSET)

27.1. IC1 (BBIC)

Pin	Description	I/O	Hi	Hi-Z	Low	Remarks
1	VDD	-	-	-	-	-
2	VSS	-	-	-	-	-
3	Data Bus	D,I/O	-	-	-	for Flash Memory
4	Address Bus	D,O	-	-	-	for Flash Memory
5	Address Bus	D,O	-	-	-	for Flash Memory
6	Address Bus	D,O	-	-	-	for Flash Memory
7	Address Bus	D,O	-	-	-	for Flash Memory
8	PA Driver Amp	D,O	PA-ON	-	PA-OFF	-
9	TX/RX SW	D,O	TX	-	RX	-
10	RX Data	D,I	Active	-	Active	-
11	PLL Strobe	D,O	Normal	-	Latch	-
12	PLL Data	D,O	Active	-	Active	-
13	PLL Clk	D,O	Active	-	Active	-
14	TX Data	A,O	Active	-	Active	-
15	KEY IN	D,I/O	No Key	-	Key	-
16	KEY IN	D,I/O	No Key	-	Key	-
17	KEY IN	D,I/O	No Key	-	Key	-
18	KEY IN	D,I/O	No Key	-	Key	-
19	KEY IN	D,I/O	No Key	-	Key	-
20	(NO USE)	D,O	-	-	-	-
21	RF System Clk	D,O	No Key	-	Key	-
22	VDD	-	-	-	-	-
23	VSS	-	-	-	-	-
24	POWER SW	A,I	Key	-	No Key	-
25	Charge DECT	A,I	Charge	-	No Charge	-
26	DCDCDRV	D,O	Active	-	Active	-
27	DCDCCMR	A,I	-	-	-	-
28	Reset	A,I	Normal	-	Reset	-
29	VSSO	A,O	-	-	-	-
30	LOAD	A,I	-	-	-	-
31	XTAL	A,I	-	-	-	10.368MHz
32	VDDPM	A,O	-	-	-	-
33	VDDLO	A,O	-	-	-	-
34	VDDBAT	A,I	-	-	-	-
35	VDDLRL	A,I	-	-	-	-

Pin	Description	I/O	Hi	Hi-Z	Low	Remarks
36	CHARGE_START	A,O	No Charge	-	Charge	for Charge
37	VDDA	-	-	-	-	-
38	VSSA	-	-	-	-	-
39	LSRN	A,O	-	-	-	-
40	LSRP	A,O	-	-	-	-
41	Bandgap REF	A,O	-	-	-	-
42	MICS	A,O	-	-	-	-
43	MICP	A,I	-	-	-	-
44	MICN	A,I	-	-	-	-
45	Reference Voltage	A,O	-	-	-	-
46	RSSI	A,I	-	-	-	-
47	Headset DET	D,I	-	-	-	-
48	Charge Current	A,I	-	-	-	-
49	Charge Current	A,I	-	-	-	-
50	DISCLK	D,O	-	-	-	for LCD
51	KEY STRB	D,I/O	Active	-	-	-
52	KEY STRB	D,I/O	Active	-	-	-
53	KEY STRB	D,I/O	Active	-	-	-
54	Address Bus	D,O	-	-	-	for Flash Memory
55	Address Bus	D,O	-	-	-	for Flash Memory
56	Address Bus	D,O	-	-	-	for Flash Memory
57	KEY STRB	D,I/O	Active	-	-	-
58	KEY STRB	D,I/O	Active	-	-	-
59	Address Bus	D,O	-	-	-	for Flash Memory
60	Address Bus	D,O	-	-	-	for Flash Memory
61	VDD	-	-	-	-	-
62	VSS	-	-	-	-	-
63	CS/CE	D,O	-	-	Active	for LCD
64	Serial Data(I2C)	D,I/O	Data	-	Data	for EEPROM
65	Serial Clk(I2C)	D,O	Active	-	Active	for EEPROM
66	MODE	D,I	-	-	(Fixed)	-
67	INH/RS	D,O	-	-	-	for LCD
68	Bell	D,O	-	-	-	-
69	Amp Enable	D,O	-	-	Active	-
70	Address Bus	D,O	-	-	-	for Flash Memory
71	Address Bus	D,O	-	-	-	for Flash Memory
72	Address Bus	D,O	-	-	-	for Flash Memory

Pin	Description	I/O	Hi	Hi-Z	Low	Remarks
73	Address Bus	D,O	-	-	-	for Flash Memory
74	Address Bus	D,O	-	-	-	for Flash Memory
75	VDDLI	A,I	-	-	-	-
76	Address Bus	D,O	-	-	-	for Flash Memory
77	Address Bus	D,O	-	-	-	for Flash Memory
78	(NO USE)	D,O	-	-	-	-
79	Back Light	D,O	LED ON	-	LED OFF	-
80	SP Phone LED	D,O	LED ON	-	LED OFF	-
81	Address Bus	D,O	-	-	-	for Flash Memory
82	Address Bus	D,O	-	-	-	for Flash Memory
83	VSS	-	-	-	-	-
84	VDD	-	-	-	-	-
85	CE	D,O	-	-	Active	for Flash Memory
86	DISDATA	D,O	-	-	-	for LCD
87	Power Select	D,O	Low Power	-	Hi Power	-
88	(NO USE)	D,O	-	-	-	-
89	(NO USE)	D,O	-	-	-	-
90	OE	D,O	-	-	Active	for Flash Memory
91	WR	D,O	-	-	Active	for Flash Memory
92	(NO USE)	D,O	-	-	-	-
93	Address Bus	D,O	-	-	-	for Flash Memory
94	Data Bus	D,I/O	-	-	-	for Flash Memory
95	Data Bus	D,I/O	-	-	-	for Flash Memory
96	Data Bus	D,I/O	-	-	-	for Flash Memory
97	Data Bus	D,I/O	-	-	-	for Flash Memory
98	Data Bus	D,I/O	-	-	-	for Flash Memory
99	Data Bus	D,I/O	-	-	-	for Flash Memory
100	Data Bus	D,I/O	-	-	-	for Flash Memory

28. EEPROM LAYOUT (BASE UNIT)

28.1. Scope

The purpose of this section is to describe the layout of the EEPROM (IC1) for the KX-TCD455 Base Unit.

The EEPROM contains hardware, software, and user specific parameters. Some parameters are set during production of the base e.g. crystal frequency adjustment at address 0000 and 0001, some are set by the user configuration e.g. ringer volume at address 0220, and some are set during normal use of the phone e.g. meter pulse billing at address 0140..015F.

28.2. Introduction

The base unit uses a 32K bit serial EEPROM (IC1) for storing volatile parameters. All parameters are set up before the base leaves the factory. Some of these are vital for the operation of the hardware so a set of default parameters is programmed before the actual hardware fine-tuning can be initiated. This document lists all default settings with a short description.

In the tables below values in a range that are similar are not repeated; i.e. Address 00 to 01 contains the value 00 simply means that the value 00 is repeated in all addresses in the range. All values in this document are in hexadecimal notation.

Type	Name	Description
D	default	The EEPROM location is preset to the Default value by the eeprom default
A	adjust	The EEPROM location is set during the production test and should not be overwritten. The value is set by the eeprom default loader only if the locati contains all 1's (byte: 0xFF, word FFFFh), i, e. it has never been set.
-		EEPROM location which is not set at all.
d	default	Same as D but best-guess value and/or not verified.

Country Setting	x	Default - no specific country setting, so revert to default value
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28.3. EEPROM Layout

28.3.1. General Setup

Address	Default	Name	Country Setting	Type	Description
0000-01	00 E0	EepromOscillator	x	A	Frequency adjustment
0002	20	ModulationDeviation	x	A	Modulation adjustment
0020	-	RFPI (ID for Base Unit)	x	A	RFPI
0025	00 00	AC (Base PIN code)	x	D	AC code
0028	00	TBR22Test	x	-	TBR22 test
0030-0034	FF .. FF	IPUI_1 (ID for H/S 1)	x	D	Ipui for handset 1. If set to FF . (5bytes) the handset is not enr
0035-0039	FF .. FF	IPUI_2 (ID for H/S 2)	x	D	Ipui for handset 2. If set to FF . (5bytes) the handset is not enr
003A-003E	FF .. FF	IPUI_3 (ID for H/S 3)	x	D	Ipui for handset 3. If set to FF . (5bytes) the handset is not enr
003F-0043	FF .. FF	IPUI_4 (ID for H/S 4)	x	D	Ipui for handset 4. If set to FF . (5bytes) the handset is not enr
0044-0048	FF .. FF	IPUI_5 (ID for H/S 5)	x	D	Ipui for handset 5. If set to FF . (5bytes) the handset is not enr
0049-004D	FF .. FF	IPUI_6 (ID for H/S 6)	x	D	Ipui for handset 6. If set to FF . (5bytes) the handset is not enr
004E-008F	-	Reserved	x	-	Protocol data
0090-009F	-	UAK_1	x	-	UAK for hanset 1 (for factory u
00A0-00AF	-	UAK_2	x	-	UAK for hanset 2 (for factory u
00B0-00BF	-	UAK_3	x	-	UAK for hanset 3 (for factory u
00C0-00CF	-	UAK_4	x	-	UAK for hanset 4 (for factory u
00D0-00DF	-	UAK_5	x	-	UAK for hanset 5 (for factory u
00E0-00EF	-	UAK_6	x	-	UAK for hanset 6 (for factory u

28.3.2. Switch Control

Address	Default	Name	Country Setting	Type	Description														
09F1	00	HsRegInfo.RegFlags	x	D	Handset registration info - registra OFF bit <table><tr><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> H/S6 1=reg, 0=no reg	7	6	5	4	3	2	1							
7	6	5	4	3	2	1													
09F2	00	HsRegInfo.EmcFlags	x	D	Handset registration info - EMC fla Bit 6..7: not used 0..5: handset 1..6 info, 1=known , (unknown														
09F3	21	RingMode	x	D	Ring mode. Modes used in KAMM. 20h and 21h. Bit 7..5: Mode (001=group) 4 : Not used 3..0: Id (001= id of first group)														

28.3.3. Flash Time setting

Address	Default	Name	Country Setting	Type	Description
0F0B	08	CalibBreakTime[0]	x	D	Calibrated loop-break time for s break Unit: 10 ms, defaultst to 80 ms
0F0C	14	CalibBreakTime[1]	x	D	Calibrated loop-break time for s break Unit: 10 ms, defaultst to 200 ms
0F0D	46	CalibBreakTime[2]	x	D	Calibrated loop-break time for s break Unit: 10 ms, defaultst to 700 ms

28.3.4. Clip (Caller ID) configuration

Address	Default	Name	Country Setting	Type	Description
0F1C	70	Detect	x	D	CLIP detect configuration Bit 0-2: Mode: 0: Learn mode, 1: only, 2: FSK only, 3: Generic Russian CLIP only 3: Unused4 4: Onhook: 1=enable 0=disab 5: Offhookk: 1=enable 0=disa 6: Msgwaiting: 1=enable 0=di 7: Unused7
0F37..38	3D 01	Parse.Configuration	3D 00	D	Clip parse set configuration Bit 0: Etsi: 1=enable 0=disable 1: ForwardNumber: 1=enable 2: Danish: 1=enable 0=disabl 3: Dutch: 1=enable 0=disable 4: Canadian: 1=enable 0=disa 5: Swedish: 1=enable 0=disal 6: UserDefined: 1=enable 0=d 7: KPN vmwi: 1=enable 0=dis 8: ProtocolPriority: If 2 mutually exclusive param occurs, the 1st in the protocc message has priority. 1=enable 0=disable 9: UseCallType: Verify the Call Type paramete available, when receiving Cal CLIP at busy subscriber. 1=enable 0=disable 10: AddTop0IfNo0 Automatic addition of 0 if top ID is not 0. 1=enable 0=disable 11: DtmfDigitsOnly Parse DTMF clip without star stop code. 1=enable 0=disable 12..15: Reserved12..Reservec

28.3.5. BsUiTask settings

Address	Default	Name	Country Setting	Type	Description
0F4B	01	Config1	x	D	BsUiTask configuration (MSB) Bits 1=enable 0=disable 0: AmPmClockSettingEnabled, 1: ClipDetectionSettingEnabled 2: AkzMenuEnabled, disabled 3: HakzMenuEnabled, disabled 4: RussianClipSttingEnabled, d 5: SmscSendNumberSettingEn disabled 6: SMSPabxSupportSettingEna disabled 7: Unused
0F4C	F7	Config2	D7	D	BsUiTask configuration (LSB) Bits 1=enable 0=disable 0: FlashTime1Enabled, enabled 1: FlashTime2Enabled, enabled 2: FlashTime3Enabled, enabled 3: KeyClicksEnable, disabled 4: ARSCarrierMenuEnabled, en 5: ARSIntDeletionMenuEnablec 6: ARSMultipleCarrierMenuEna enabled 7: ARSMultipleAreaCodeMenuf enabled
0F4D	00	UserData.SmsPabxSuport	x	D	SMS PABX Support On/Off
0F4E	0F	Config2	FF	D	BsUiTask configuration 2 Bits 1=enable 0=disable 0: RingerModeMenuEnabled, ei 1: CallRestrictionMenuEnabled 2: CancelHandsetMenuEnabled 3: BaseToneMenusEnabled, en 4-7: Unused

29. EEPROM LAYOUT (HANDSET)

29.1. Scope

The purpose of this section is to describe “layout of the EEPROM (IC3) KX-A145 Handset”. The EEPROM contains hardware, software, and user specific parameters. Some parameters are set during production of the handset e.g. crystal oscillator adjustment at 0000..01, some are set by the user when configuring the handset e.g. ringer volume at 349, and some during normal use of the phone e.g. redial memory at 020D..028E.

29.2. Introduction

The handset uses a 64k bit serial EEPROM (IC3) for storing volatile parameters. All parameters are set up before the handset the factory. Some of these are vital for the operation of the hardware so a set of default parameters is programmed before the actual hardware fine-tuning can be initiated. This document lists all default settings with a short description.

This document lists all default parameters with a short description.

In the tables below values in a range that are similar are not repeated; i.e. Address 00 to 01 contains the value 00 simply means that the value 00 is repeated in all addresses in the range.

Type	Name	Description
D	default	The EEPROM location is preset to the Default value by the eeprom default loader.
A	adjust	The EEPROM location is set during the production test and should not be overwritten. The value is set by the eeprom default loader only if the location contains 0xFF, i.e. it has never been set.
-		EEPROM location which is not set at all.

29.3. EEPROM contents

29.3.1. General Setup

Address	Default	Name	Type	Description
0000-0001	00	EepromOscillator	A	Frequency adjustment
0002	20	ModulationDeviation	A	Modulation adjustment
0030-0034	00	IPEI (ID for Handset)	A	IPEI
0036-003A	FF	PARK_1 (ID for Base 1)	-	PARK for registration 1
003B-003F	FF	PARK_2 (ID for Base 2)	-	PARK for registration 2
0040-0044	FF	PARK_3 (ID for Base 3)	-	PARK for registration 3
0045-0049	FF	PARK_4 - PARK_8 (ID for Base 4)	-	PARK for registration 4-8
004A-004D	FF	PLI_1-PLI_4	D	Pli for registration 1-4. If set to FF registration is deleted.
0100-0104	-	RFPI_1 - RFPI_4 (Base 1)	-	RFPI for registration 1-4
0105	-	SerClass_1	-	Service class for registration 1
0106	-	LAL_1	-	Location area level for registration
0107	-	IPUI_LEN_1	-	IPUI length for registration 1
0108-0114	-	IPUI_1 - IPUI_12	-	IPUI for registration 1-12
0115	-	ZAP_1	-	ZAP for registration 1
0116	-	STATUS_1	-	Status for registration 1
0117-126	-	UAK_1 - UAK_15	-	UAK for registration 1-15
0130-134	-	RFPI_2 - RFPI_6 (Base 2)	-	RFPI for registration 2-6
0135	-	SerClass_2	-	Service class for registration 2

Address	Default	Name	Type	Description
0136	-	LAL_2	-	Location area level for registration
0137	-	IPUI_LEN_2	-	IPUI length for registration 2
0138-0144	-	IPUI_2 - IPUI_14	-	IPUI for registration 2-14
0145	-	ZAP_2	-	ZAP for registration 2
0146	-	STATUS_2	-	Status for registration 2
0147-0156	-	UAK_2 - UAK_17	-	UAK for registration 2-17
0160-0164	-	RFPI_3 - RFPI_7 (Base 3)	-	RFPI for registration 3-7
0165	-	SerClass_3	-	Service class for registration 3
0166	-	LAL_3	-	Location area level for registration
0167	-	IPUI_LEN_3	-	IPUI length for registration 3
0168-0174	-	IPUI_3 - IPUI_15	-	IPUI for registration 3-15
0175	-	ZAP_3	-	ZAP for registration 3
0176	-	STATUS_3	-	Status for registration 3
0177-0186	-	UAK_3 - UAK_18	-	UAK for registration 3-18
0190-0194	-	RFPI_4 - RFPI_8 (Base 4)	-	RFPI for registration 4
0195	-	SerClass_4	-	Service class for registration 4
0196	-	LAL_4	-	Location area level for registration
0197	-	IPUI_LEN_4	-	IPUI length for registration 4
0198-01A4	-	IPUI_4 - IPUI_16	-	IPUI for registration 4
01A5	-	ZAP_4	-	ZAP for registration 4
01A6	-	STATUS_4	-	Status for registration 4
01A7-01B6	-	UAK_4 - UAK_19	-	UAK for registration 4

29.3.2. MMI Setup

Address	Default	Name	Country Setting	Type	Description
029A-029B	0000	HSPinCode	x	D	4 BCD Digits

Address	Default	Name	Country Setting	Type	Description
02AC	01	FactoryLanguageSetting	00	D	Factory setting for language: 00 = German 01 = English 02 = Welsh 03 = Croatian 04 = Spanish 05 = Norwegian 06 = French 07 = Italian 08 = Danish 09 = Dutch 0A = Swedish 0B = Finnish 0C = Greek 0D = Turkish 0E = Hungarian 0F = Portuguese 10 = Russian 11 = Polish 12 = Slovakian 13 = Czechs 14 = Basque 15 = Catalan
02AD	01	Language	00	D	Language code (see table above)
02AE	FF	AvailableLanguages	x	D	Bit 0: 0:Disable, 1:Enable German Bit 1: 0:Disable, 1:Enable English Bit 2: 0:Disable, 1:Enable Welsh Bit 3: 0:Disable, 1:Enable Croatian Bit 4: 0:Disable, 1:Enable Spanish Bit 5: 0:Disable, 1:Enable Norwegian Bit 6: 0:Disable, 1:Enable French Bit 7: 0:Disable, 1:Enable Italian
02AF	FF	AvailableLanguages	x	D	Bit 0: 0:Disable, 1:Enable Danish Bit 1: 0:Disable, 1:Enable Dutch Bit 2: 0:Disable, 1:Enable Swedish Bit 3: 0:Disable, 1:Enable Finnish Bit 4: 0:Disable, 1:Enable Greek Bit 5: 0:Disable, 1:Enable Turkish Bit 6: 0:Disable, 1:Enable Hungarian Bit 7: 0:Disable, 1:Enable Portuguese

Address	Default	Name	Country Setting	Type	Description
02B0	FF	AvailableLanguages	FE	D	Bit 0: 0:Disable, 1:Enable Russian Bit 1: 0:Disable, 1:Enable Polish Bit 2: 0:Disable, 1:Enable Slovakia Bit 3: 0:Disable, 1:Enable Czechs Bit 4: 0:Disable, 1:Enable Basque Bit 5: 0:Disable, 1:Enable Catalan Bit 6: 0:Disable, 1:Enable Gallego Bit 7: 0:Disable, 1:Enable Irish
02F1	01	RecVolStoreEnabled	x	D	00 - Reciever volume will be reset value when hooking on. 01 - Reciever volume will be store eeprom when set in conversation.
034A	02	EEVoiceVolume	x	D	Volume of the earpiece
03ED	00	Temporary Tone Dialing	00	D	01 = On.
1EE9	07	MaxDigitsToMatch	x	D	Valid values: 01 - FF Digits above this value will not be evaluated, when matching.
1EEA	05	MinDigitsToMatch	x	D	Valid values: 01 - FF (-Must be low MaxDigitsToMatch). -If all digits of one of the numbers completely, -with at least this number of digits a match. (-Or if they match completely with digits, we also have match.)
1EEC	04	DisplayContrast	17	D	Display contrast value[00..1F] with the highest contrast setting

29.3.3. Battery Parameters

Address	Default	Name	Type	Description
1F02	A0	LowVoltage	A	Voltage on which to start battery low-indication. The voltage has to be measured under this value for 8 seconds before the handset start signaling low battery. LowVoltage[eeprom]=[ADC-steps]= LowVoltage[mV](14.35[mV/step])

29.3.4. Default Audio-Parameters

Address	Default	Name	Country Setting	Type	Description
1F07	46	ReceiveGainLowOffset	x	D	Bit7 - AOG Bit6 - AOG2 Bit5 - bit0: Gain-receive for volume offset to volumestep 2 (GR-Index) ranging from 0x00 to 0x24, each step representing 1 dB)
1F08	46	ReceiveGainHighOffset	x	D	Bit7 - AOG Bit6 - AOG2 Bit5 - bit0: Gain-receive for volume offset to volumestep 2 (GR-Index) ranging from 0x00 to 0x24, each step representing 1 dB)
1F1C	16	GX-index	17	A	Gain-transmit (values ranging from 0x24, each step representing 1 dB index represent volumestep 2. See
1F1D	59	GX-index	x	A	Bit7 - AOG Bit6 - AOG2 Gain-receive (values ranging from 0x24, each step representing 1 dB index represent volumestep 2. See

30. HOW TO REPLACE FLAT PACKAGE IC

30.1. Preparation

- PbF (: Pb free) Solder

- Soldering Iron

Tip Temperature of 700°F ± 20°F (370°C ± 10°C)

Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.

- Flux

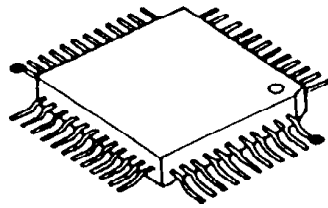
Recommended Flux: Specific Gravity → 0.82.

Type → RMA (lower residue, non-cleaning type)

Note: See [ABOUT LEAD FREE SOLDER \(PbF: Pb free\)](#) ().

30.2. Procedure

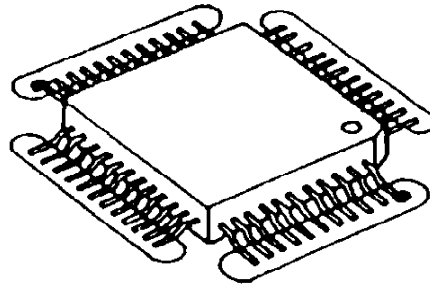
1. Tack the flat pack IC to the PCB by temporarily soldering two diagonally opposite pins in the correct positions on the PCB.



● - - - - - Temporary soldering point.

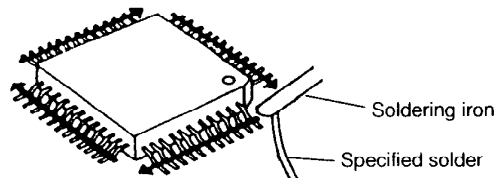
Be certain each pin is located over the correct pad on the PCB.

2. Apply flux to all of the pins on the IC.



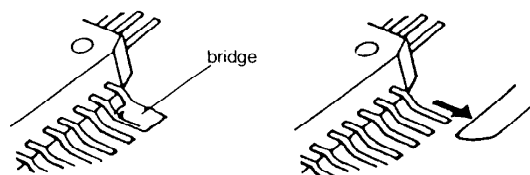
○ - - - - - Flux

3. Being careful to not unsolder the tack points, slide the soldering iron along the tips of the pins while feeding enough solder to the tip so that it flows under the pins as they are heated.



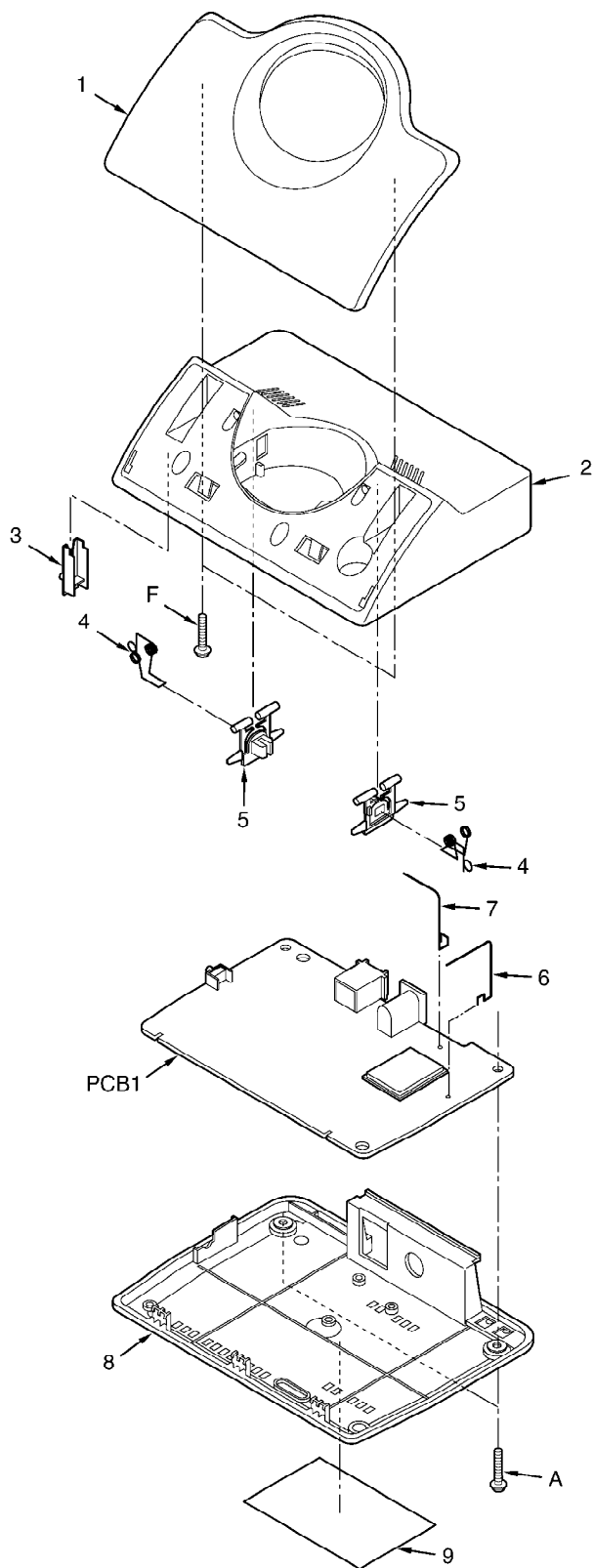
30.3. Modification Procedure of Bridge

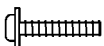

1. Add a small amount of solder to the bridged pins.
2. With a hot iron, use a sweeping motion along the flat part of the pin to draw the solder from between the adjacent pads.



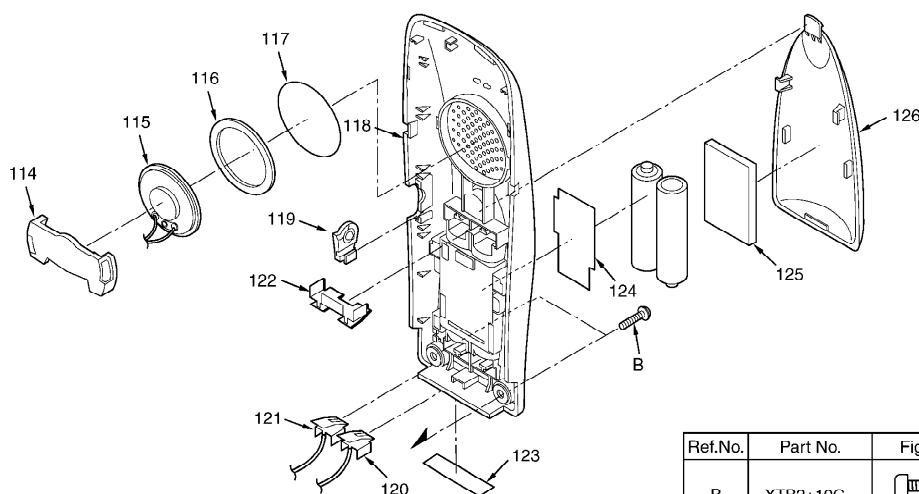
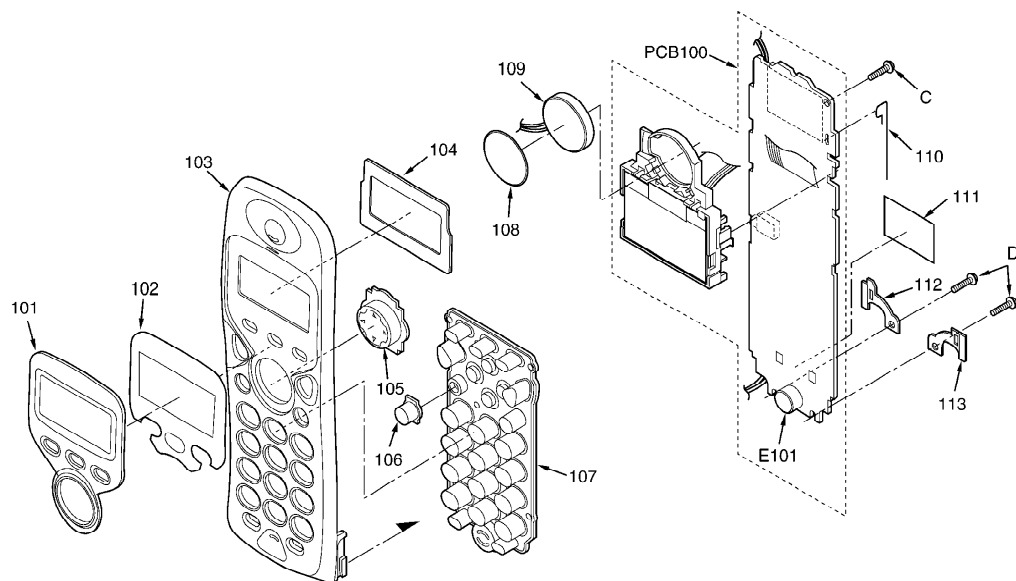
31. CABINET AND ELECTRICAL PARTS LOCATION




(BASE UNIT)



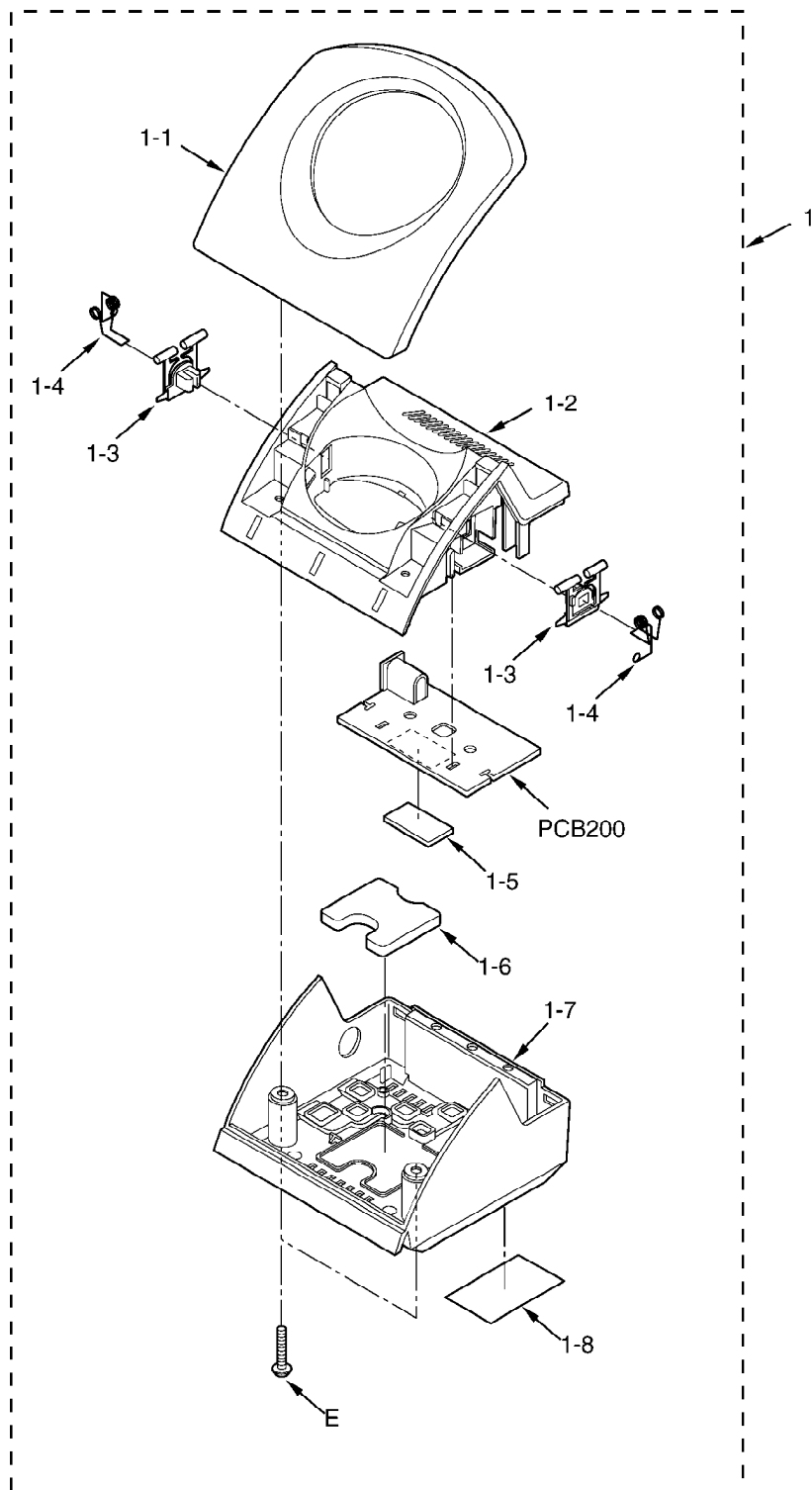
Ref.No.	Part No.	Figure
A	XTW26+12P	 $\phi 2.6 \times 12\text{mm}$
F	XTW26+12P	 $\phi 2.6 \times 12\text{mm}$


32. CABINET AND ELECTRICAL PARTS LOCATION (HANDSET)



Ref.No.	Part No.	Figure
B	XTB2+10G	 $\phi 2 \times 10\text{mm}$
C	XTB2+8G	 $\phi 2 \times 8\text{mm}$
D	XTB2+8G	 $\phi 2 \times 8\text{mm}$

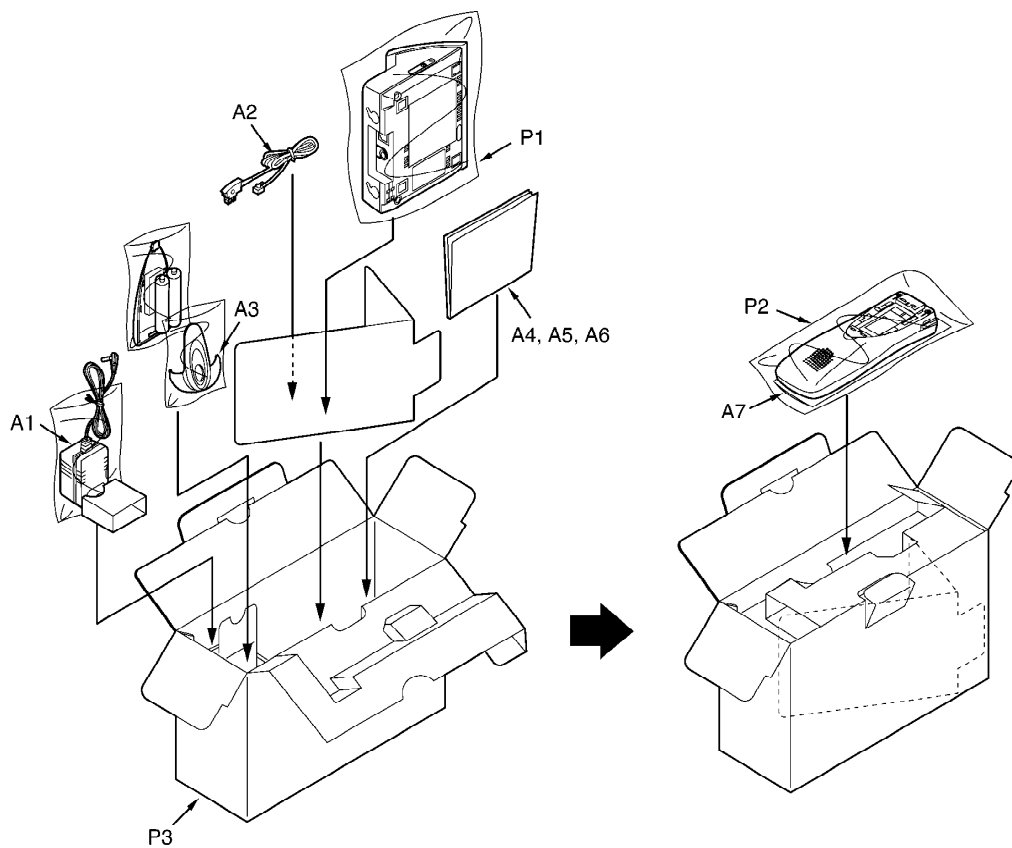
33. CABINET AND ELECTRICAL PARTS LOCATION (CHARGER UNIT)



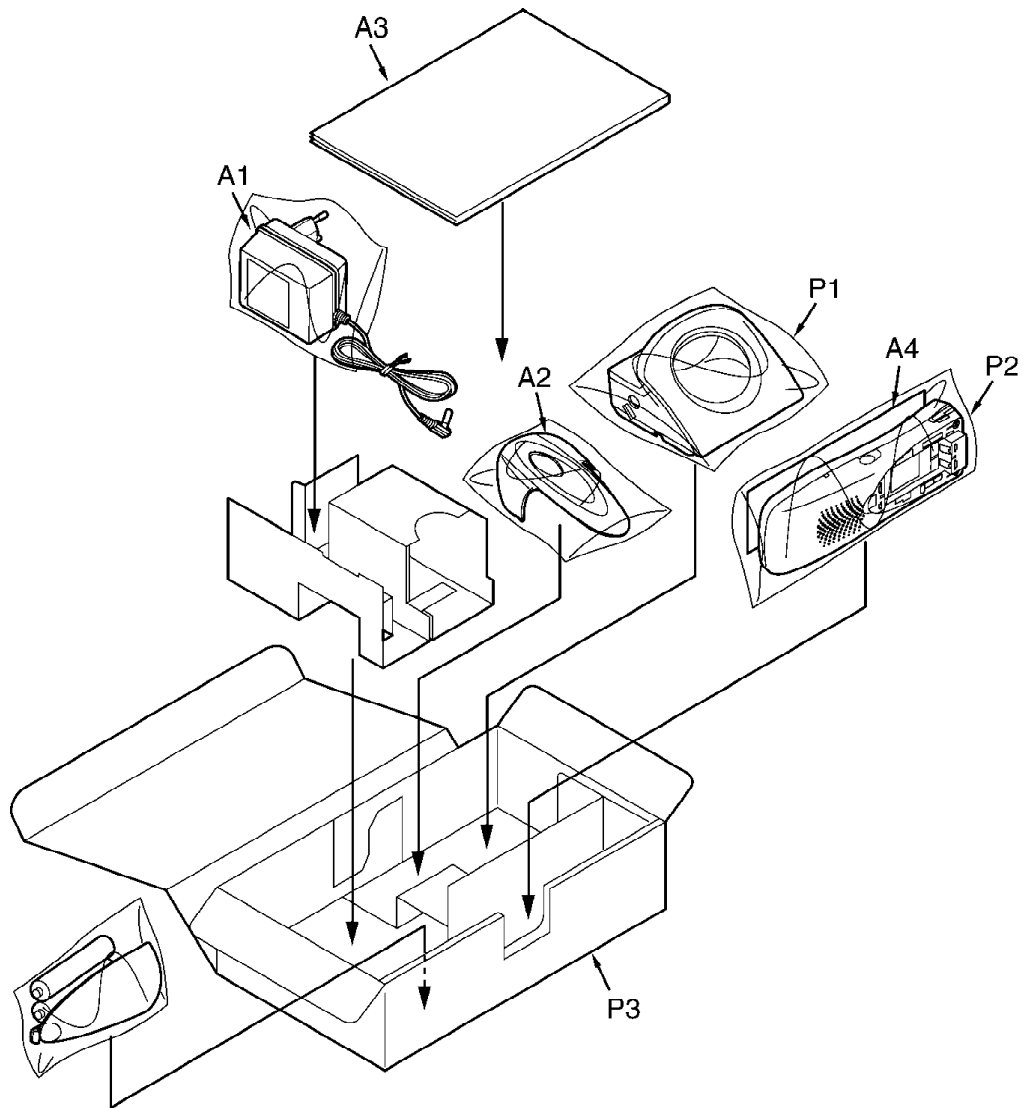
Ref.No.	Part No.	Figure
E	XTW26+14P	 $\phi 2.6 \times 14\text{mm}$

34. ACCESSORIES AND PACKING MATERIALS

34.1. KX-TCD455GM

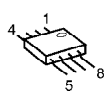
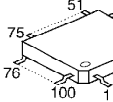
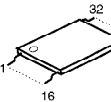
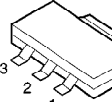
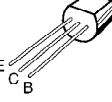
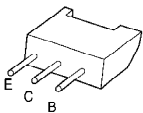
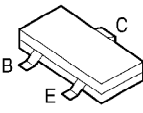
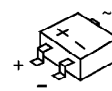

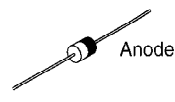
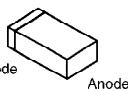

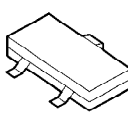
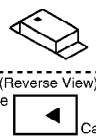


34.2. KX-A145EXM

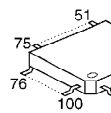
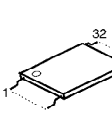
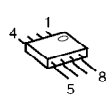
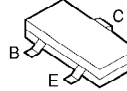
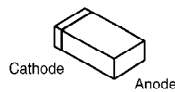
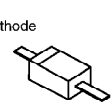
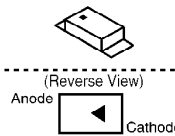
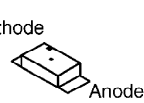


35. TERMINAL GUIDE OF THE ICs, TRANSISTORS AND DIODES

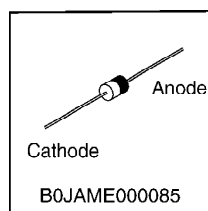
35.1. Base Unit

 PQVI1D455GH	 C1CB00001608	 PQVI2D455GH	 PQVILM1117MP	 2SA1625
 2SD1994A	 PQVTBF822T7, B1ADGE000004 PQVTDTC143K		 PQVDS1ZB60F1	 MAZY30000L
 B0JAME000085	 MA2Z74800L MAZ80470ML	 PQVDBZV55C02	 B0DDCM000001	 LNJ308G8JRA

35.2. Handset

 C1CB00001559	 PQWI2D455GR	 PQWI1D455GR C1BB00000265	 PQVTDTC143XU, B1CFMC000006 B1ADGE000004, UN5216
 MA8047 B0JCDD000002 MA2Z74800L	 B0JCME000035	 LNJ308G8JRA	 PQVDSML310MT PQVDBR1111C

35.3. Charger Unit



36. REPLACEMENT PARTS LIST


1. RTL (Retention Time Limited)

Note:

The marking (RTL) indicates that the Retention Time is limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by the  mark indicates special characteristics important for safety. When replacing any of these components, only use specified manufacture's parts.

3. The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.

4. ISO code (Example: ABS-94HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.

5. RESISTORS & CAPACITORS

Unless otherwise specified;

All resistors are in ohms (Ω) K=1000 Ω , M=1000k Ω

All capacitors are in MICRO FARADS (μ F)P= μ μ F

*Type & Wattage of Resistor

Type					
ERC:Solid ERDS:Carbon ERJ:Chip		ERX:Metal Film ERG:Metal Oxide ERO:Metal Film		PQ4R:Chip ERS:Fusible Resistor ERF:Cement Resistor	
Wattage					
10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
*Type & Voltage Of Capacitor					
Type					
ECFD:Semi-Conductor ECQS:Styrol ECUV,PQCUV,ECUE:Chip ECQMS:Mica		ECCD,ECKD,ECBT,F1K,ECUV:Ceramic ECQE,ECQV,ECQG:Polyester ECEA,ECST,EEE:Electlytic ECQP:Polypropylene			
Voltage					
ECQ Type	ECQG ECQV Type	ECSZ Type	Others		
1H:50V 2A:100V 2E:250V 2H:500V	05:50V 1:100V 2:200V	0F:3.15V 1A:10V 1V:35V 0J:6.3V	0J :6.3V 1A :10V 1C :16V 1E,25:25V	1V :35V 50,1H:50V 1J :16V 2A :100V	

36.1. Base Unit

36.1.1. Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
1	PQGG10154X5	GRILLE	ABS-HB
2	PQKM10586Z4	CABINET BODY	ABS-HB
3	PQHR10962Z	OPTIC CONDUCTIVE PARTS, LED LENS	
4	PQJT10203Z	TERMINAL	
5	PQKE10356Z1	GUIDE, CHARGE TERMINAL CASE	POM-HB
6	PQSA10131Z	ANTENNA, MAIN	
7	PQSA10132Z	ANTENNA, SUB	
8	PQYF10560Z4	CABINET COVER	ABS-HB
9	PQGT15720Z	NAME PLATE	

36.1.2. Main P.C.Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PQWP1D455GH	MAIN P.C.BOARD ASS'Y (RTL)	
		(ICs)	
IC1	PQWI2D455GH	IC	
IC2	C1CB00001608	IC	
IC4	PQWI1D455GH	IC	
Q9	PQVILM1117MP	IC	S
		(TRANSISTORS)	
Q2	2SA1625	TRANSISTOR(SI)	S
Q3	PQVTBF822T7	TRANSISTOR(SI)	
Q6	2SD1994A	TRANSISTOR(SI)	
Q8	B1ADGE000004	TRANSISTOR(SI)	
Q10	PQVTDTC143K	TRANSISTOR(SI)	
		(DIODES)	
D2	PQVDS1ZB60F1	DIODE(SI)	S
D3	MAZY30000L	DIODE(SI)	
D4	B0JAME000085	DIODE(SI)	
D5	MA2Z74800L	DIODE(SI)	
D7	PQVDBZV55C02	DIODE(SI)	
D8	MAZ80470ML	DIODE(SI)	
D9	MAZ80470ML	DIODE(SI)	
D10	MAZ80470ML	DIODE(SI)	
DA1	B0DDCM000001	DIODE(SI)	
LED1	LNJ308G8JRA	LED	
		(COILS)	
L1	PQLQR4D4R7K	COIL	
L3	PQLQR2M33NK	COIL	
L8	PQLQR2M1N8S	COIL	S
C54	G1C2N7Z00008	COIL	
C57	PQLQR2M1N8S	COIL	S
C58	PQLQR2M1N8S	COIL	S
		(JACKS)	
J1	PQJJ1TB26Z	TEL JACK	S
J2	PQJJ1B4Y	DC JACK	
		(RESISTORS)	
R1	ERJ3GEYJ155	1.5M	
R2	ERJ3GEYJ155	1.5M	
R3	ERJ3GEYJ224	220K	
R4	ERJ3GEYJ184	180K	
R5	ERJ3GEYJ224	220K	
R6	ERJ3GEYJ184	180K	
R7	ERJ3GEYJ104	100K	
R8	ERJ3GEYJ272	2.7K	
R9	ERJ3GEYJ103	10K	
R10	ERJ3GEYJ222	2.2K	
R12	PQ4R18XJ000	0	S
R16	ERJ3GEYJ133	13K	
R18	ERJ3GEYJ392	3.9K	
R19	ERJ12YJ220	22	
R20	ERJ12YJ560	56	
R21	ERJ3GEYJ104	100K	
R22	ERJ3GEYJ333	33K	
R23	ERJ3GEYJ560	56	
R25	ERJ3GEYJ391	390	

Ref. No.	Part No.	Part Name & Description	Remarks
R28	ERJ3GEYJ751	750	
R29	ERJ3GEYJ101	100	
R30	ERJ3GEYJ101	100	
R31	ERJ3GEYJ101	100	
R32	ERJ3GEYJ560	56	
R33	PQ4R10XJ102	1K	S
R37	ERJ3GEY0R00	0	
R38	ERJ3GEYJ330	33	
R39	ERJ3GEY0R00	0	
R40	ERJ3GEY0R00	0	
R41	ERJ3GEYJ101	100	
R42	ERJ3GEYJ221	220	
R43	ERJ1WYJ330	33	
R44	ERJ1WYJ330	33	
R53	ERJ3GEYJ565	5.6M	
R54	ERJ3GEYJ184	180K	
R57	ERJ3GEYJ103	10K	
R58	ERJ3GEYJ103	10K	
R59	ERJ3GEYJ105	1M	
R66	ERJ3GEYJ390	39	
R67	ERJ3GEYJ390	39	
R68	ERJ3GEYJ151	150	
R77	PQ4R10XJ000	0	S
R78	ERJ3GEYJ181	180	
R79	ERJ3GEYJ181	180	
R80	ERJ3GEYJ222	2.2K	
R81	ERJ3GEYJ565	5.6M	
R82	ERJ3GEYJ184	180K	
R83	ERJ3GEYJ222	2.2K	
R84	ERJ3GEYJ103	10K	
L4	PQ4R18XJ000	0	S
		(CAPACITORS)	
C1	ECKD2H681KB	680P	S
C2	ECKD2H681KB	680P	S
C3	ECQE2223KF	0.022	
C4	ECQE2223KF	0.022	
C11	ECUV1H472KBV	0.0047	S
C12	PQCUV1C474KB	0.47	
C13	PQCUV1A105KB	1	
C14	PQCUV1C224KB	0.22	
C15	ECEA1HKS100	10	S
C16	PQCUV1H154KR	0.15	
C18	ECUV1H100DCV	10P	
C19	ECUV1H100DCV	10P	
C20	ECUV1C104KBV	0.1	
C21	ECUV1H100DCV	10P	
C22	PQCUV1C224KB	0.22	
C23	ECUV1C104KBV	0.1	
C24	ECUV1C104KBV	0.1	
C25	ECEA1CKS100	10	S
C26	ECUV1C104KBV	0.1	
C27	ECUV1C104KBV	0.1	
C28	ECUV1C683KBV	0.068	
C29	ECUV1C683KBV	0.068	

Ref. No.	Part No.	Part Name & Description	Remarks
C30	ECUV1H182KBV	0.0018	
C31	ECKD2H681KB	680P	S
C32	ECUV1H270JCV	27P	
C33	ECUV1H1R0CCV	1	
C34	ECUV1C104KBV	0.1	
C35	ECUV1H333KBV	0.033	S
C36	ECUV1C104KBV	0.1	
C37	ECUV1C104KBV	0.1	
C38	ECUV1C104KBV	0.1	
C40	ECEA1AKA101	100	
C41	ECEA0JKA101	100	
C39	PQCUV1E104MD	0.1	S
C42	ECUV1H101JCV	100P	
C43	ECUV1H100DCV	10P	
C44	ECUV1C104KBV	0.1	
C45	ECUV1C104KBV	0.1	
C46	ECUV1C104KBV	0.1	
C47	ECUV1H101JCV	100P	
C48	ECUV1H330JCV	33P	
C49	ECUV1H103KBV	0.01	
C50	ECUV1H100DCV	10P	
C52	ECUV1H101JCV	100P	
C55	ECUV1H100DCV	10P	
C56	ECUV1H100DCV	10P	
C59	ECUV1H101JCV	100P	
C61	ECUV1H100DCV	10P	
C64	ECUV1H102KBV	0.001	
C65	ECUV1H2R0CCV	2	
C66	ECUV1H060DCV	6P	S
C67	ECUV1A475KB	4.7	
C68	ECUV1A475KB	4.7	
C69	ECUV1H2R0CCV	2	
C72	ECUV1H2R0CCV	2	
C73	ECUV1H100DCV	10P	
C74	ECUV1H103KBV	0.01	
C76	ECUV1C104KBV	0.1	
C78	ECUV1H102KBV	0.001	
C79	ECUV1H102KBV	0.001	
C80	ECUV1H060DCV	6P	S
C81	ECUV1H2R0CCV	2	
C82	ECUV1H030CCV	3P	
C83	ECUV1H1R0CCV	1	
C84	ECUV1H1R0CCV	1	
C85	ECUV1H1R0CCV	1	
C87	ECUV1H101JCV	100P	
C88	ECUV1H100DCV	10P	
C89	ECUV1H100DCV	10P	
C90	ECUV1H100DCV	10P	
C91	ECUV1H1R0CCV	1	
		(OTHERS)	
IC3	J3FKK0000003	RF UNIT	
S1	K0H1BB000018	SPECIAL SWITCH, TACTILE	
SA1	PQVDDSS301L	VARISTOR (SURGE ABSORBER)	S
X1	H0D103500003	CRYSTAL OSCILLATOR	

36.2. Handset

36.2.1. Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
101	PQGP10226Z1	PANEL, LCD	AS-HB
102	PQHS10553Z	TAPE, DOUBLE SIDE	
103	PQKM10587Y5	CABINET BODY	ABS-HB
104	PQHS10555Y	SPACER, LCD	
105	PQBC10375Z1	PUSH BUTTON, NAVI	
106	PQBC10376Z1	BUTTON, SP-PHONE	
107	PQSX10225Z	KEYBOARD SWITCH, 20KEY	
108	PQHS10467Z	COVER, SP NET	
109	L0AD02A00015	SPEAKER	
110	PQSA10134Z	ANTENNA	
111	PQHX11202Z	INSULATOR	
112	PQJT10204Z	TERMINAL (L)	
113	PQJT10205Z	TERMINAL (R)	
114	PQHR10964Z	GUIDE SPEAKER	
115	L0AD02A00010	SPEAKER	
116	PQHG10666Z	SPACER, SP RUBBER SHEET	
117	PQHS10457Z	COVER, SP NET	
118	PQKF10583Z5	CABINET COVER	ABS-HB
119	PQKE10357Z1	COVER, E/P CAP	
120	PQJC10058Z	BATTERY TERMINAL (+)	
121	PQJC10057Z	BATTERY TERMINAL (-)	
122	PQJC10056Z	BATTERY TERMINAL	
123	PQGT15721Z	NAME PLATE	
124	PQHX11199Z	PLASTIC PARTS, BATTERY COVER SHEET	
125	PQHS10561Y	SPACER, BATTERY COVER	
126	PQKK10134Z5	LID, BATTERY	ABS-HB

36.2.2. Main P.C.Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB100	PQWP1D455GR	MAIN P.C.BOARD ASS'Y (RTL)	
		(ICs)	
IC1	C1CB00001559	IC	
IC2	PQWI2D455GR	IC	
IC3	PQWI1D455GR	IC	S
IC4	C1BB00000265	IC	
		(TRANSISTORS)	
Q1	PQVTDTC143XU	TRANSISTOR(SI)	S
Q3	B1CFMC000006	TRANSISTOR(SI)	
Q5	PQVTDTC143XU	TRANSISTOR(SI)	S
Q7	B1ADGE000004	TRANSISTOR(SI)	
Q8	UN5216	TRANSISTOR(SI)	
Q11	PQVTDTC143XU	TRANSISTOR(SI)	S
		(DIODES)	
D7	MA8047	DIODE(SI)	
D9	MA8047	DIODE(SI)	
D16	B0JCME000035	DIODE(SI)	
D19	B0JCDD000002	DIODE(SI)	
D20	MA2Z74800L	DIODE(SI)	
LED1	LNJ308G8JRA	LED	
LED2	LNJ308G8JRA	LED	
LED3	LNJ308G8JRA	LED	
LED11	PQVDSML310MT	LED	S
LED12	PQVDSML310MT	LED	S
LED13	PQVDSML310MT	LED	S
LED14	PQVDSML310MT	LED	S
LED17	PQVDBR1111C	LED	S
		(COILS)	
L1	G1A470L00001	COIL	
L5	PQLQR4D4R7K	COIL	
F1	PQLQR2M5N6K	COIL	S
		(RESISTORS)	
R1	ERJ3GEYJ222	2.2K	
R2	ERJ3GEYJ224	220K	
R3	ERJ3GEYJ103	10K	
R4	ERJ3GEYJ330	33	
R5	ERJ3GEYJ330	33	
R6	ERJ3GEYJ471	470	
R7	ERJ3GEYJ150	15	
R8	ERJ3GEYJ471	470	
R9	ERJ3GEYJ223	22K	
R10	ERJ3GEYJ102	1K	
R11	ERJ3GEYJ560	56	
R12	ERJ3GEYJ4R7	4.7	
R13	ERJ3GEYJ103	10K	
R14	ERJ6RSJR10V	0.1	
R15	ERJ3GEYJ184	180K	
R16	ERJ8BQJR30	0.3	
R17	ERJ3GEYJ683	68K	
R18	ERJ3GEYJ563	56K	
R19	ERJ3GEYJ104	100K	
R20	ERJ3GEYJ104	100K	
R21	ERJ3GEYJ471	470	
R22	ERJ3GEYJ150	15	

Ref. No.	Part No.	Part Name & Description	Remarks
R23	ERJ3GEYJ150	15	
R24	ERJ3GEYJ471	470	
R27	ERJ3GEYJ220	22	
R28	ERJ3GEYJ220	22	
R31	ERJ3GEYJ103	10K	
R34	ERJ3GEYJ103	10K	
R35	ERJ3GEYJ824	820K	
R36	ERJ3EKF4303	430K	
R37	ERJ3GEYJ224	220K	
R38	ERJ3GEYJ103	10K	
R43	PQ4R10XJ820	82	S
R51	ERJ3GEYJ332	3.3K	
R59	ERJ3GEYJ103	10K	
R60	ERJ3GEYJ103	10K	
R67	ERJ3GEYJ101	100	
R68	ERJ3GEYJ101	100	
R410	ERJ3GEYJ330	33	
R411	ERJ3GEYJ2R2	2.2	
L4	ERJ3GEY0R00	0	
		(CAPACITORS)	
C1	ECUV1C104KBV	0.1	
C2	ECUV1C104KBV	0.1	
C3	ECUV1C683KBV	0.068	
C4	EEE0JA331P	330	
C5	ECUV1C683KBV	0.068	
C6	ECUV1H030CCV	3P	
C7	ECUV1H270JCV	27P	
C8	ECUV1C104KBV	0.1	
C9	EEE0JA331P	330	
C10	ECUV1A105KBV	1	
C11	PQCUV1A225KB	2.2	
C12	ECUV1C104KBV	0.1	
C13	ECUV1C104KBV	0.1	
C14	ECUV1C104KBV	0.1	
C15	ECUV1C104KBV	0.1	
C16	ECUV1C104KBV	0.1	
C17	ECUV1H100DCV	10P	
C18	ECST0JY475	4.7	
C19	ECUV1H100DCV	10P	
C20	ECUV1H100DCV	10P	
C21	ECUV1H100DCV	10P	
C22	ECUV1H100DCV	10P	
C23	ECUV1H100DCV	10P	
C24	ECUV1H152KBV	0.0015	
C25	ECUV1H100DCV	10P	
C26	ECUV1H100DCV	10P	
C27	ECUV1H100DCV	10P	
C29	ECUV1H100DCV	10P	
C30	ECUV1C104KBV	0.1	
C31	ECUV1C104KBV	0.1	
C32	ECUV1C104KBV	0.1	
C33	ECUV1C104KBV	0.1	
C34	ECUV1H100DCV	10P	
C35	ECST0JY106	10	

Ref. No.	Part No.	Part Name & Description	Remarks
C36	ECUV1C104KBV	0.1	
C37	ECUV1H103KBV	0.01	
C38	ECUV1H100DCV	10P	
C39	ECUV1A224KBV	0.22	
C40	ECUV1A224KBV	0.22	
C41	ECUV1H100DCV	10P	
C42	ECUV1H103KBV	0.01	
C43	ECUV1H103KBV	0.01	
C44	ECUV1H103KBV	0.01	
C45	ECUV1H103KBV	0.01	
C46	ECUV1H103KBV	0.01	
C47	ECUV1C683KBV	0.068	
C49	ECUV1A105KBV	1	
C52	ECUV1C104KBV	0.1	
C53	ECUV1C104KBV	0.1	
C55	PQCUV1C474KB	0.47	
C56	ECUV1C104KBV	0.1	
C57	ECUV1H103KBV	0.01	
C58	ECUV1C683KBV	0.068	
C59	ECUV1C104KBV	0.1	
C60	PQCUV1A225KB	2.2	
C61	ECUV1H100DCV	10P	
C62	ECUV1H100DCV	10P	
C63	ECUV1A224KBV	0.22	
C64	ECUV1A224KBV	0.22	
C65	ECUV1H100DCV	10P	
C66	ECUV1H100DCV	10P	
C67	ECUV1H100DCV	10P	
C68	ECUV1H100DCV	10P	
C70	ECUV1H680JCV	68P	
C111	ECUV1H330JCV	33P	
C401	ECUV1H100DCV	10P	
C402	ECUV1A105KBV	1	
C403	ECUV1H020CCV	2P	
C405	ECUV1A475KB	4.7	
C408	ECUV1A475KB	4.7	
C409	ECUV1H020CCV	2P	
C422	ECUV1H020CCV	2P	
C423	ECUV1H020CCV	2P	
		(OTHERS)	
E101	L0CBAB000052	MICROPHONE	
IC10	J3FKK0000003	RF UNIT	
X1	H0D103500002	CRYSTAL OSCILLATOR	
JACK	K2HD103D0001	JACK	

36.3. Charger Unit

36.3.1. Cabinet and Electrical Parts


Ref. No.	Part No.	Part Name & Description	Remarks
1	PQLV30018ZM1	ACCESSORY PARTS,CHARGER UNIT	
1-1	PQGG10155Y5	GRILLE	ABS-HB
1-2	PQKM10591Z3	CABINET BODY	PS-HB
1-3	PQKE10356Z1	GUIDE, CHARGE TERMINAL CASE	POM-HB
1-4	PQJT10206Z	CHARGE TERMINAL	
1-5	PQHX10991Z	CUSHION, URETHANE FORM	
1-6	PQMH10426Z	WEIGHT	
1-7	PQYF10563Z3	CABINET COVER	PS-HB
1-8	PQGT15735X	NAME PLATE	

36.3.2. Main P.C.Board Parts


Ref. No.	Part No.	Part Name & Description	Remarks
PCB200	PQWPA142ESCH	MAIN P.C.BOARD ASS'Y (RTL)	
		(DIODE)	
D1	B0JAME000085	DIODE(SI)	
		(JACK)	
CN1	K2EZ2B000040	JACK	S
		(RESISTORS)	
R1	ERJ1WYJ220	22	
R2	ERJ1WYJ270	27	

36.4. Accessories and Packing Materials

36.4.1. KX-TCD455GM

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQLV19CEZ	AC ADAPTOR	
A2	PQJA10139Z	CORD, TELEPHONE	
A3	PQKE10355Z1	HANGER, BELT CLIP	
A4	PQXQ13613Z	INSTRUCTION BOOK	
A5	PQQW12853Z	QUICK GUIDE	
A6	PQQW13105Z	SMS LEAFLET	
A7	PQQW12846W	LEAFLET, RECHARGE	
P1	PQPP10100Z	PROTECTION COVER (for Base Unit)	
P2	PQPP10084Z	PROTECTION COVER (for Handset)	
P3	PQPK13828Z	GIFT BOX	

36.4.2. KX-A145EXM

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQLV200EZ	AC ADAPTOR	
A2	PQKE10355Z1	HANGER, BELT CLIP	
A3	PQXQ13849Z	INSTRUCTION BOOK	
A4	PQQW12846W	LEAFLET, RECHARGE	
P1	PQPP10086Z	PROTECTION COVER (for Charger Unit)	
P2	PQPP10084Z	PROTECTION COVER (for Handset)	
P3	PQPK13947Y	GIFT BOX	

36.5. Fixtures and Tools

Part No.	Part Name & Description	Remarks
PQZZTCD705BX	I2C PCB	
PQZZ1CD705BX	RS232C CABLE	
PQZZ2CD705BX	CLIP CABLE	
PQZZ3CD705BX	DC CABLE	
PQZZTCD455E	BATCH FILE	

Note:

See **CHECK PROCEDURE (BASE UNIT)** (), and **CHECK PROCEDURE (HANDSET)** ().

37. FOR SCHEMATIC DIAGRAM

37.1. Base Unit (**SCHEMATIC DIAGRAM (BASE UNIT)**)

Notes:

1. DC voltage measurements are taken with voltmeter from the negative voltage line.

Important Safety Notice:

Components identified by \triangle mark have special characteristics important for safety. When replacing any of these components, use only the manufacturer's specified parts.

2. This schematic diagram may be modified at any time with the development of new technology.

37.2. Handset (**SCHEMATIC DIAGRAM (HANDSET)**)

Notes:

1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams and circuit board may be modified at any time with the development of new technology.

37.3. Memo

38. SCHEMATIC DIAGRAM (BASE UNIT)

39. SCHEMATIC DIAGRAM (HANDSET)

40. SCHEMATIC DIAGRAM (CHARGER UNIT)

41. CIRCUIT BOARD (BASE UNIT)

41.1. Component View

41.2. Flow Solder Side View

42. CIRCUIT BOARD (HANDSET)

42.1. Component View

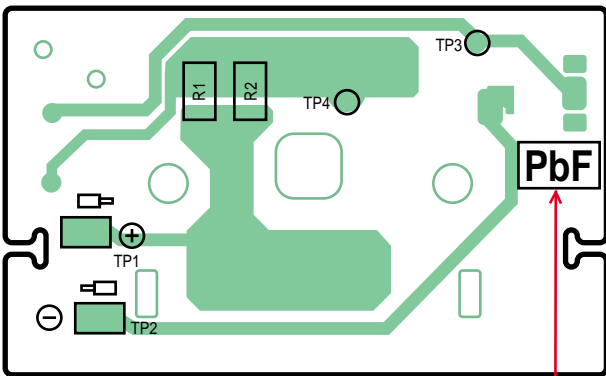
42.2. Flow Solder Side View

43. CIRCUIT BOARD (CHARGER UNIT)

43.1. Component View

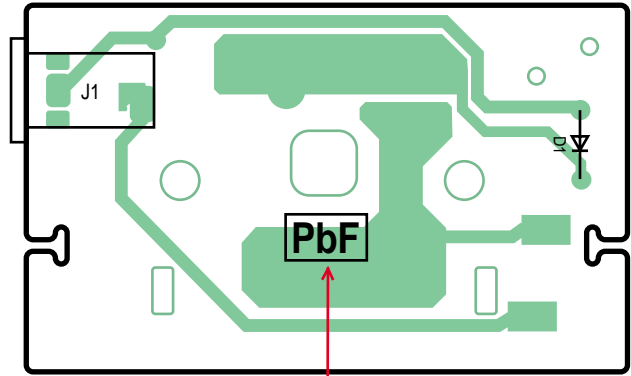
43.2. Flow Solder Side View

M / KXTCD455GM / KXA145EXM



Marked

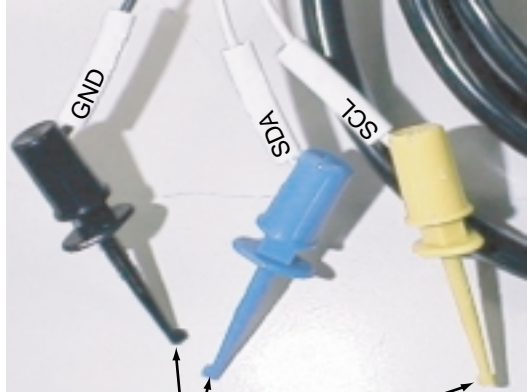
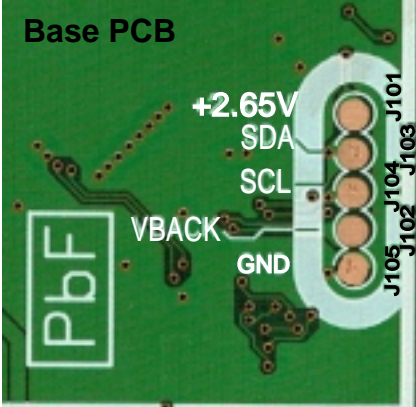
(Component View)



Marked

(Flow Solder Side View)

Base PCB



Clip

Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\¥>cd dect

C:\¥DECT>SET RTX_COM=1

C:\¥DECT>DOSKEY

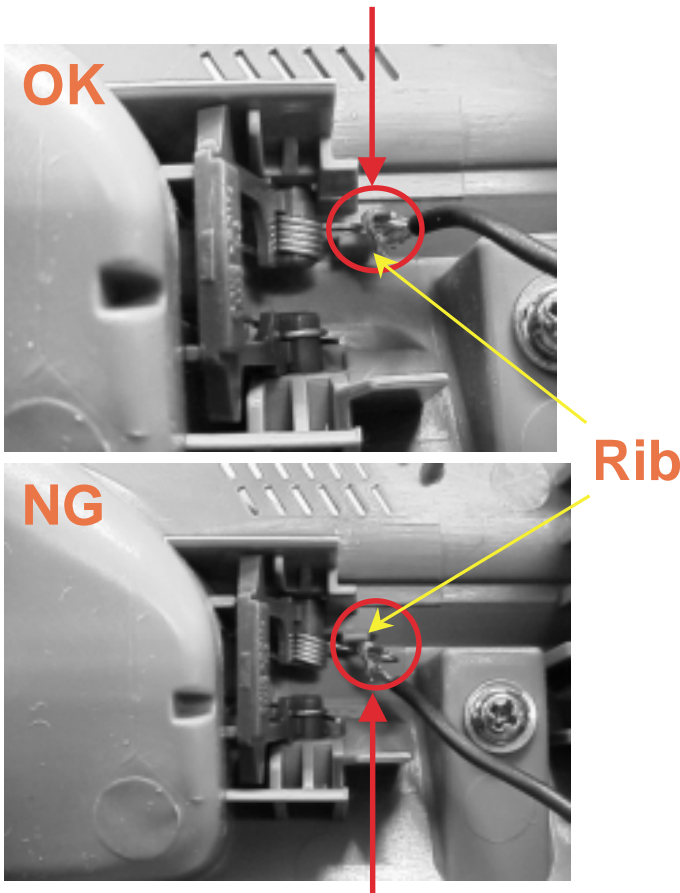
C:\¥DECT>initbspin

C:\¥DECT>call wreeprom.bat 00 25 00

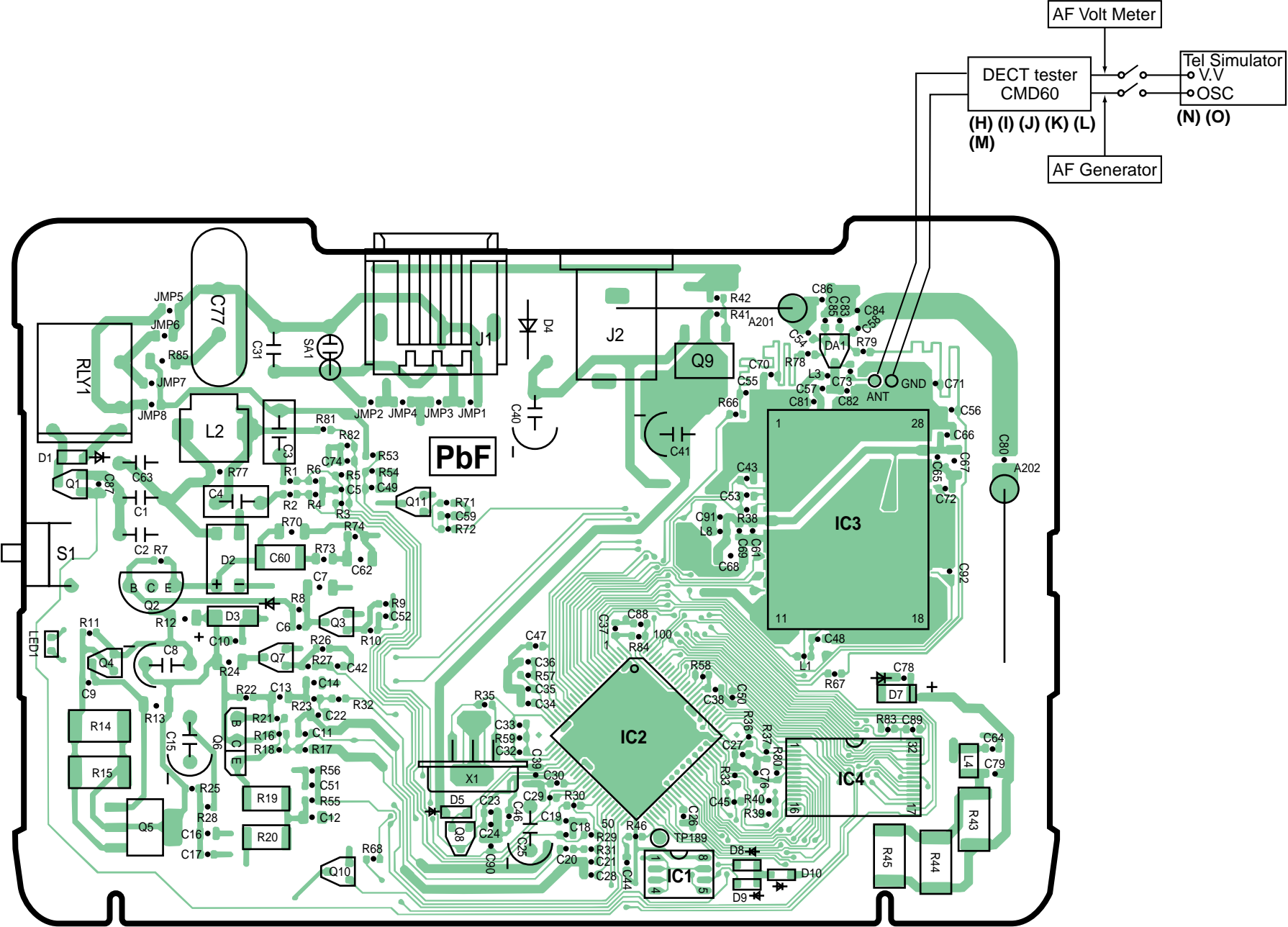
C:\¥DECT>call wreeprom.bat 00 26 00

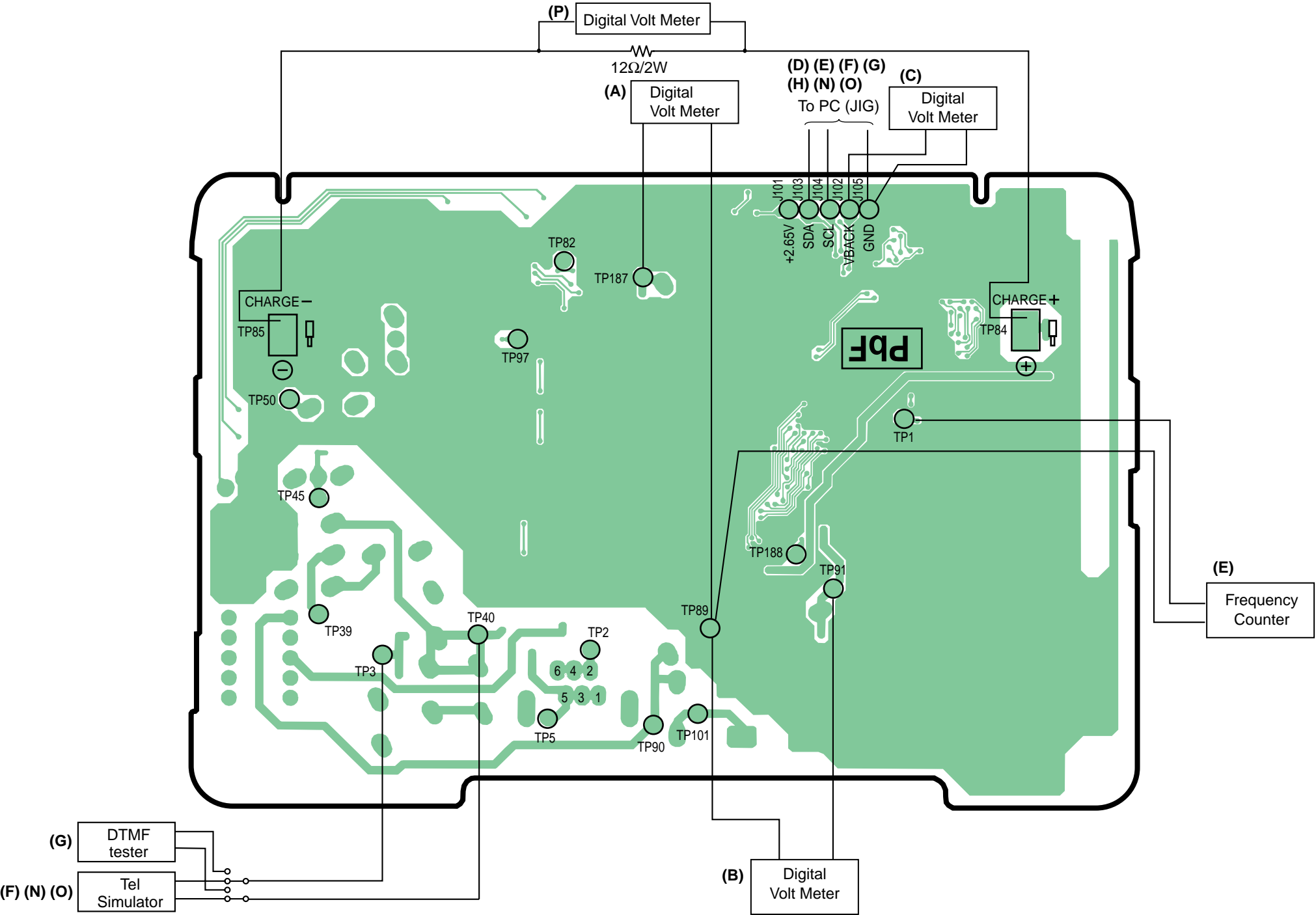
C:\¥DECT>_

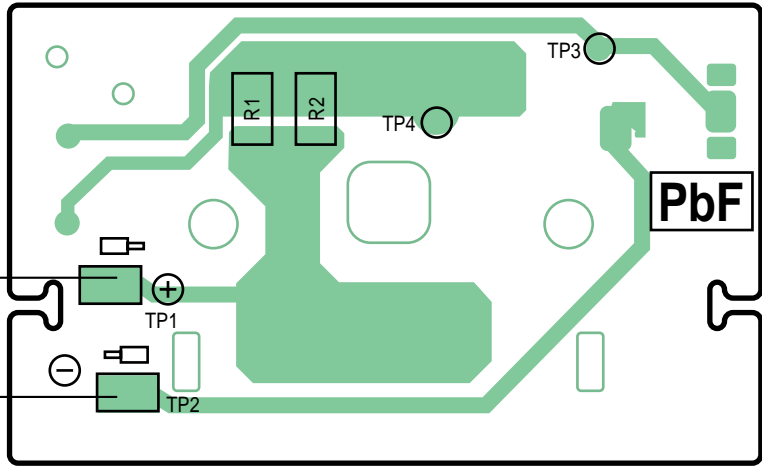
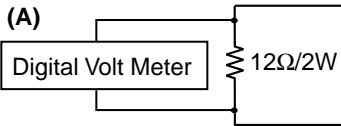
CHG terminal is properly fit in the cabinet.

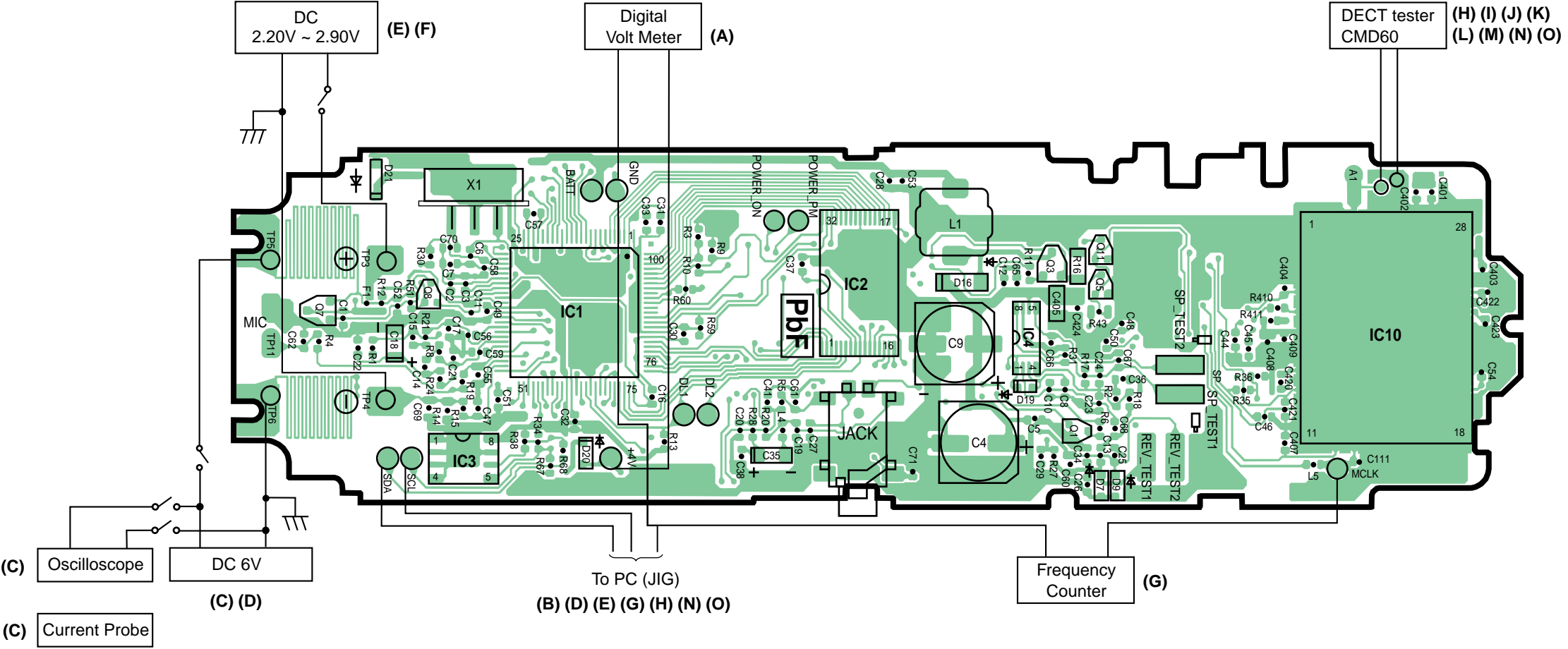


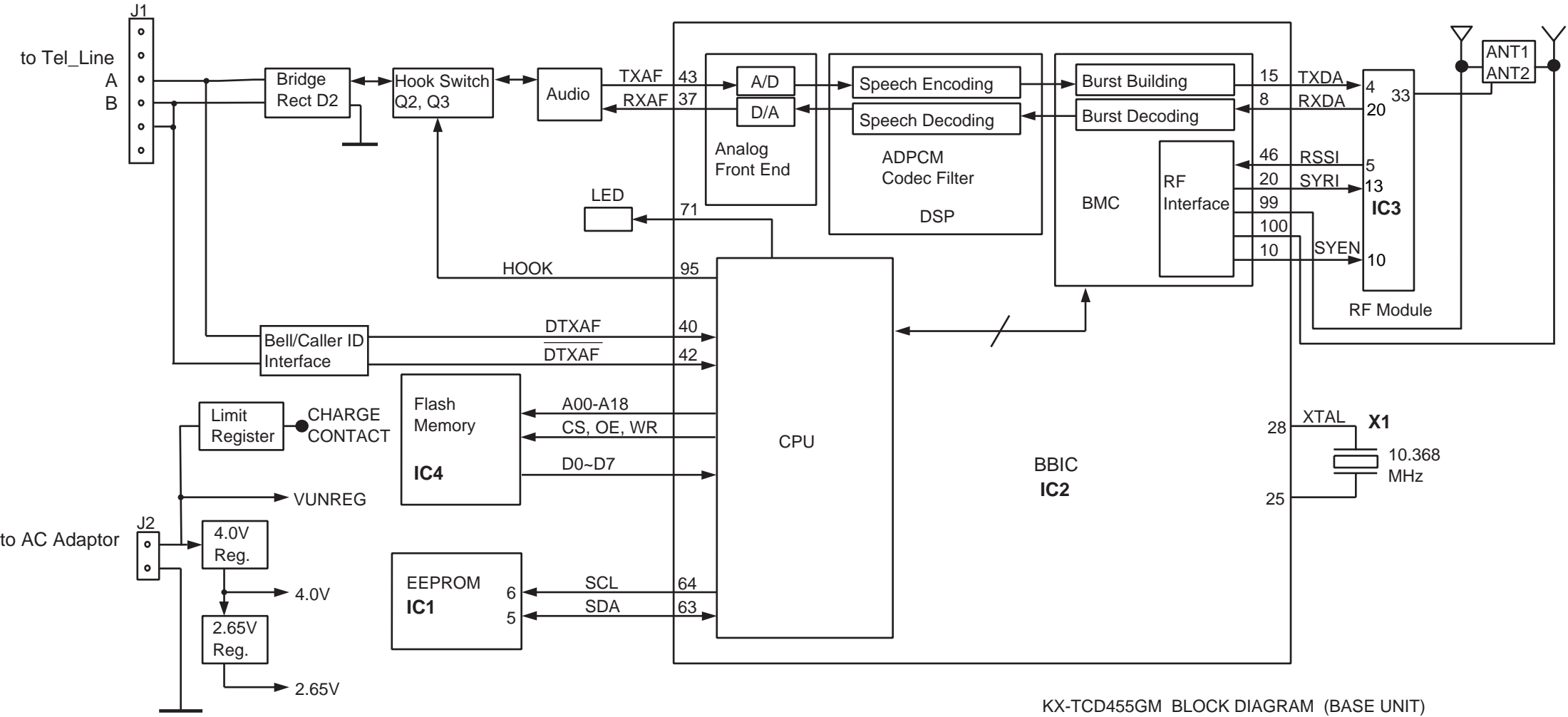
CHG terminal comes out of rib by pulling black lead wire when opening the cabinet and turning the PCB over. The terminal cannot have enough elastic force, cannot have good contact with handset, and it will result in charge problem.



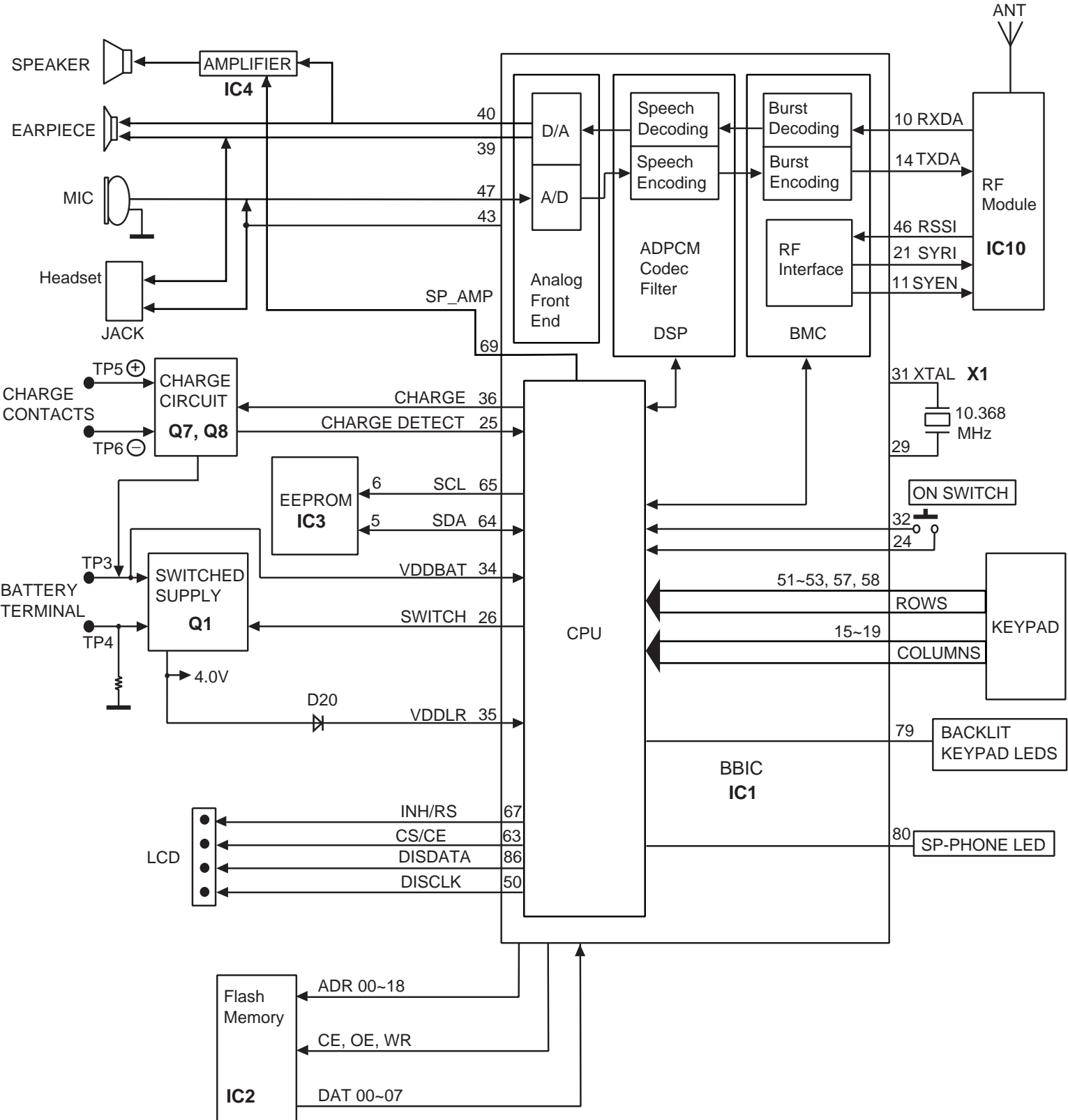








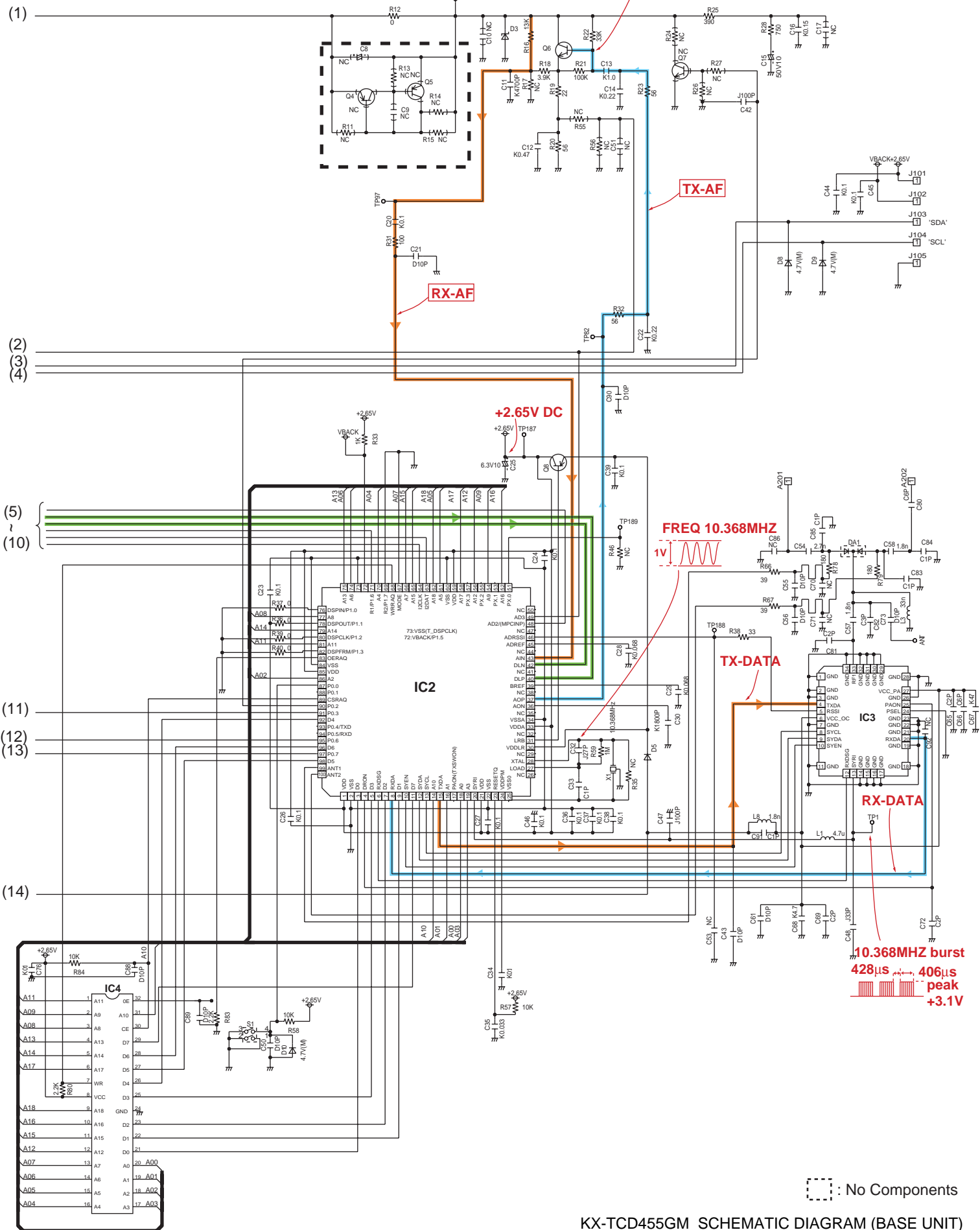
KX-TC455GM BLOCK DIAGRAM (BASE UNIT)



KX-A145EXM BLOCK DIAGRAM (HANDSET)

ON-HOOK: 0V
OFF-HOOK: about DC 9.8V

ON-HOOK: 0V
OFF-HOOK: about DC 3.9V

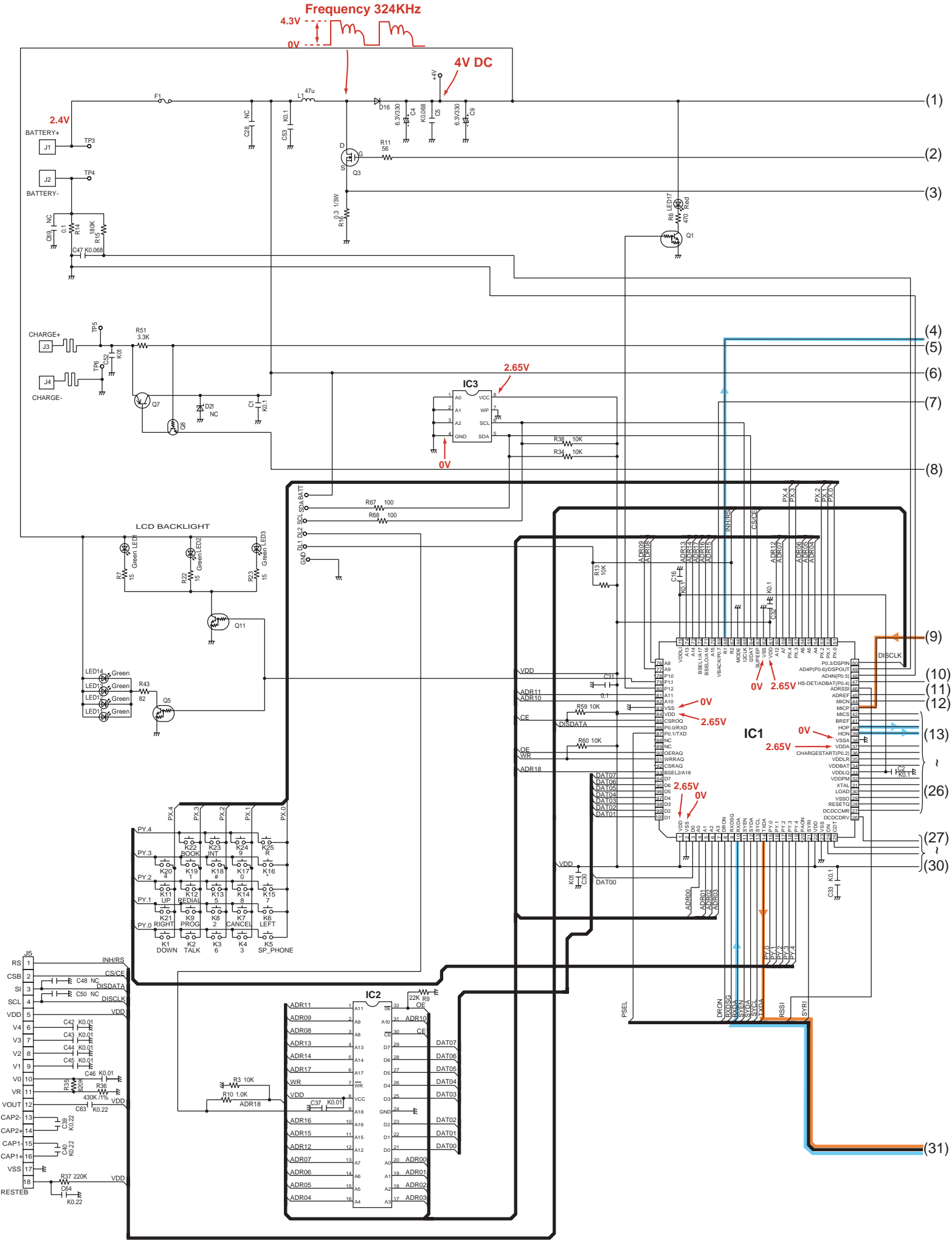


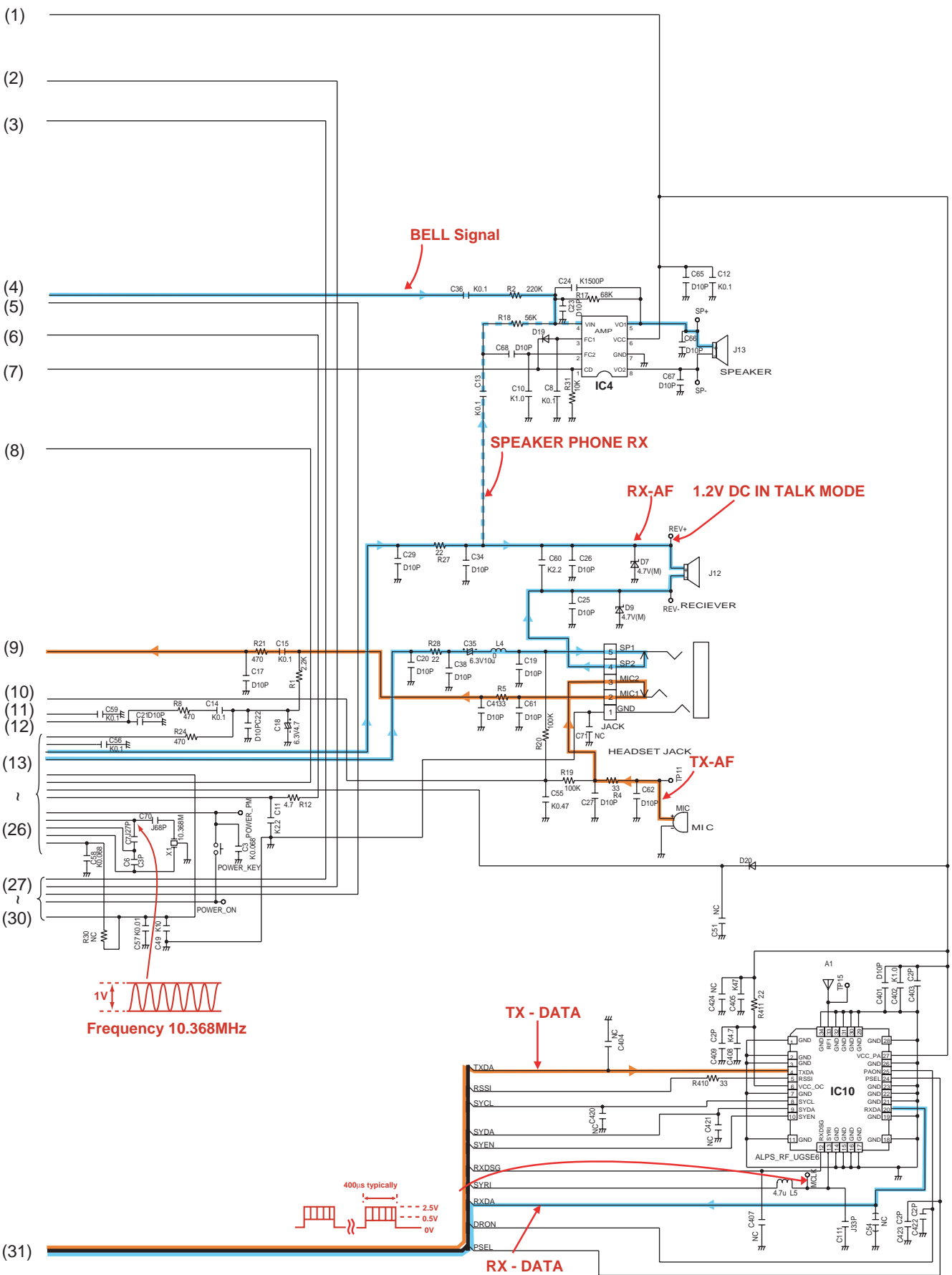
⌚ : No Components

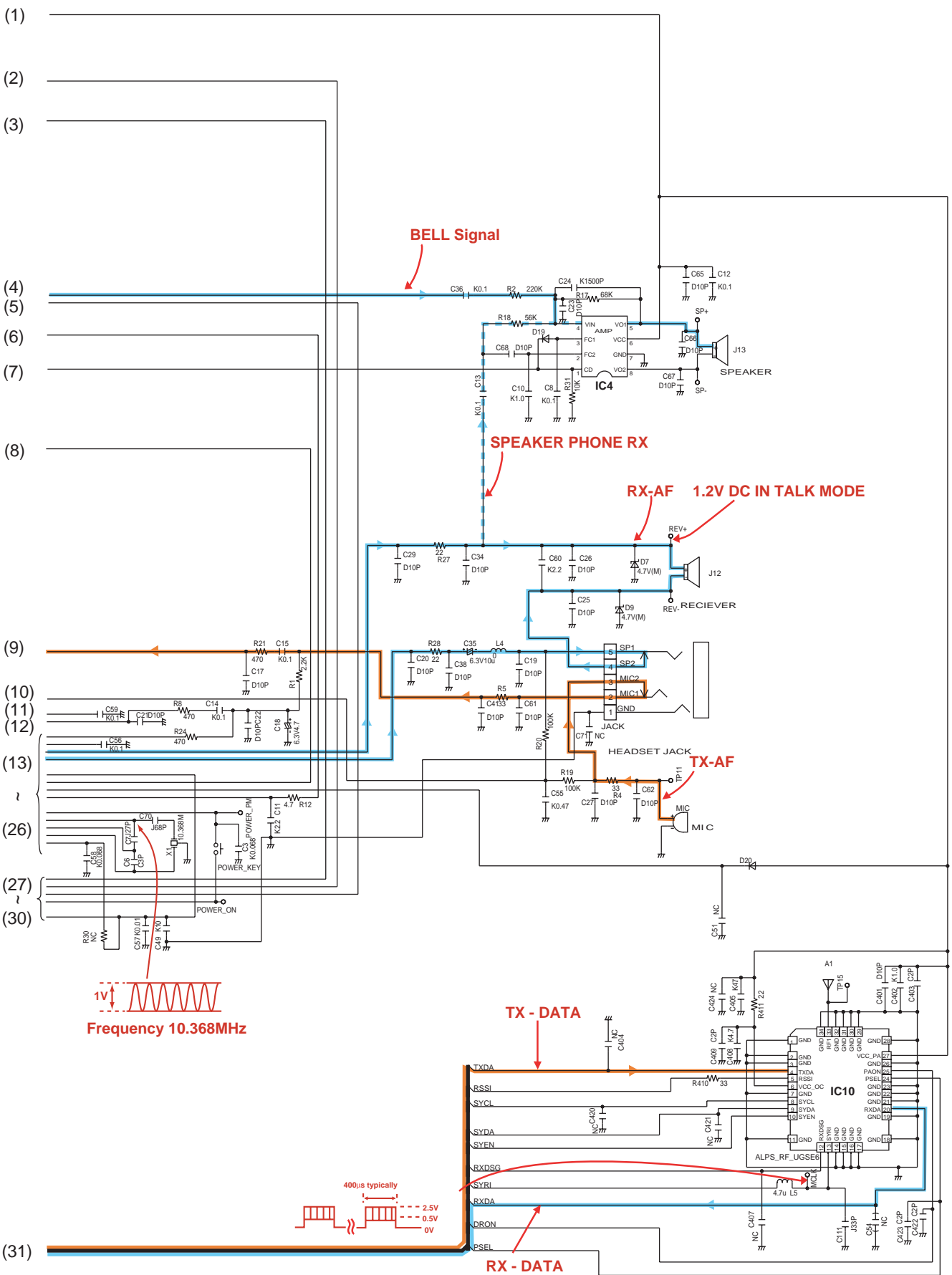
ON-HOOK: 0V
OFF-HOOK: about DC 3.9V

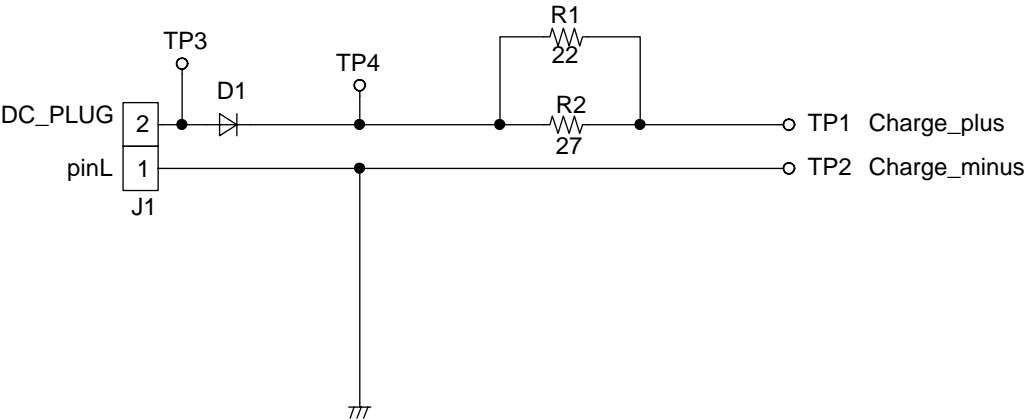


KX-TCD455GM SCHEMATIC DIAGRAM (BASE UNIT)

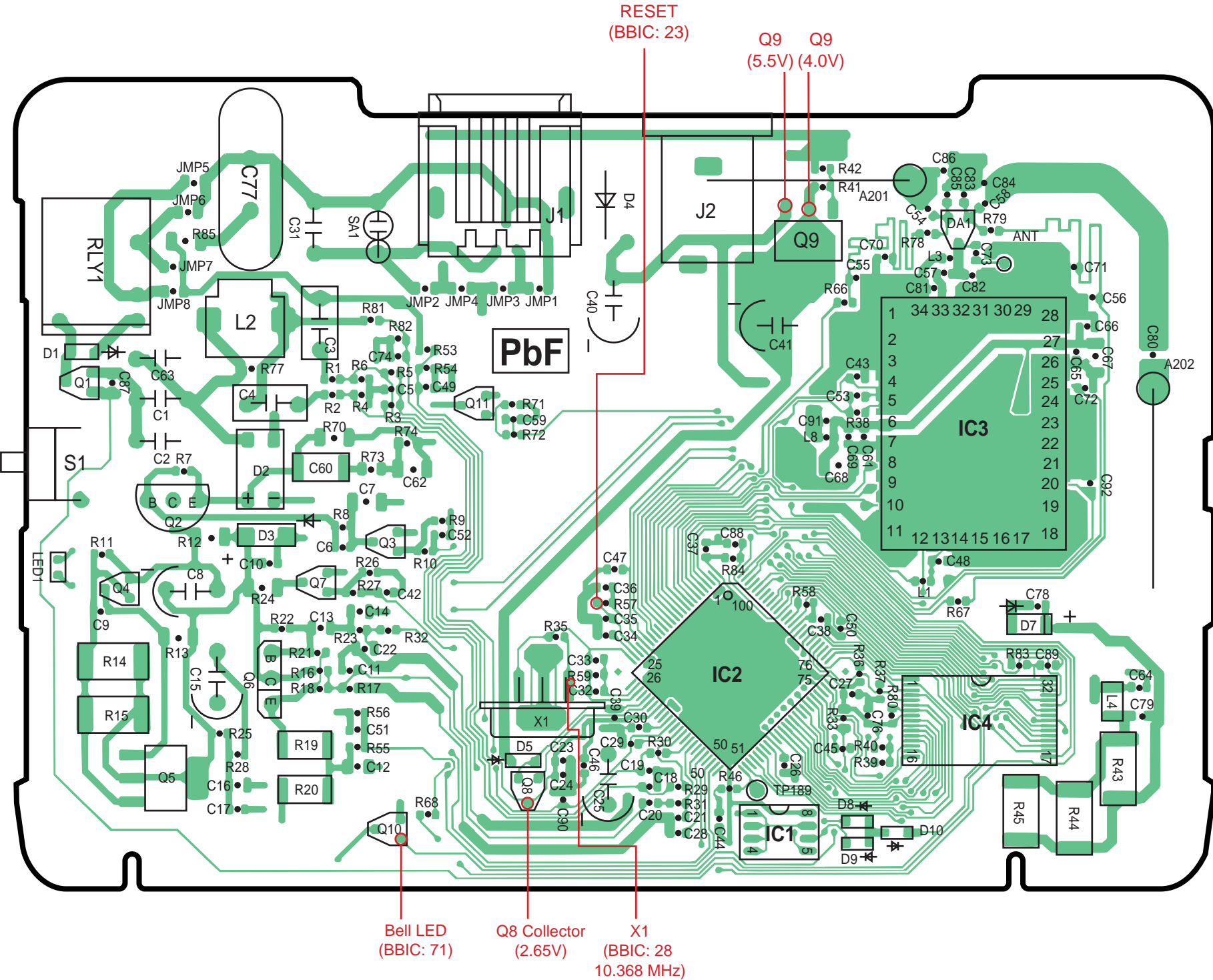




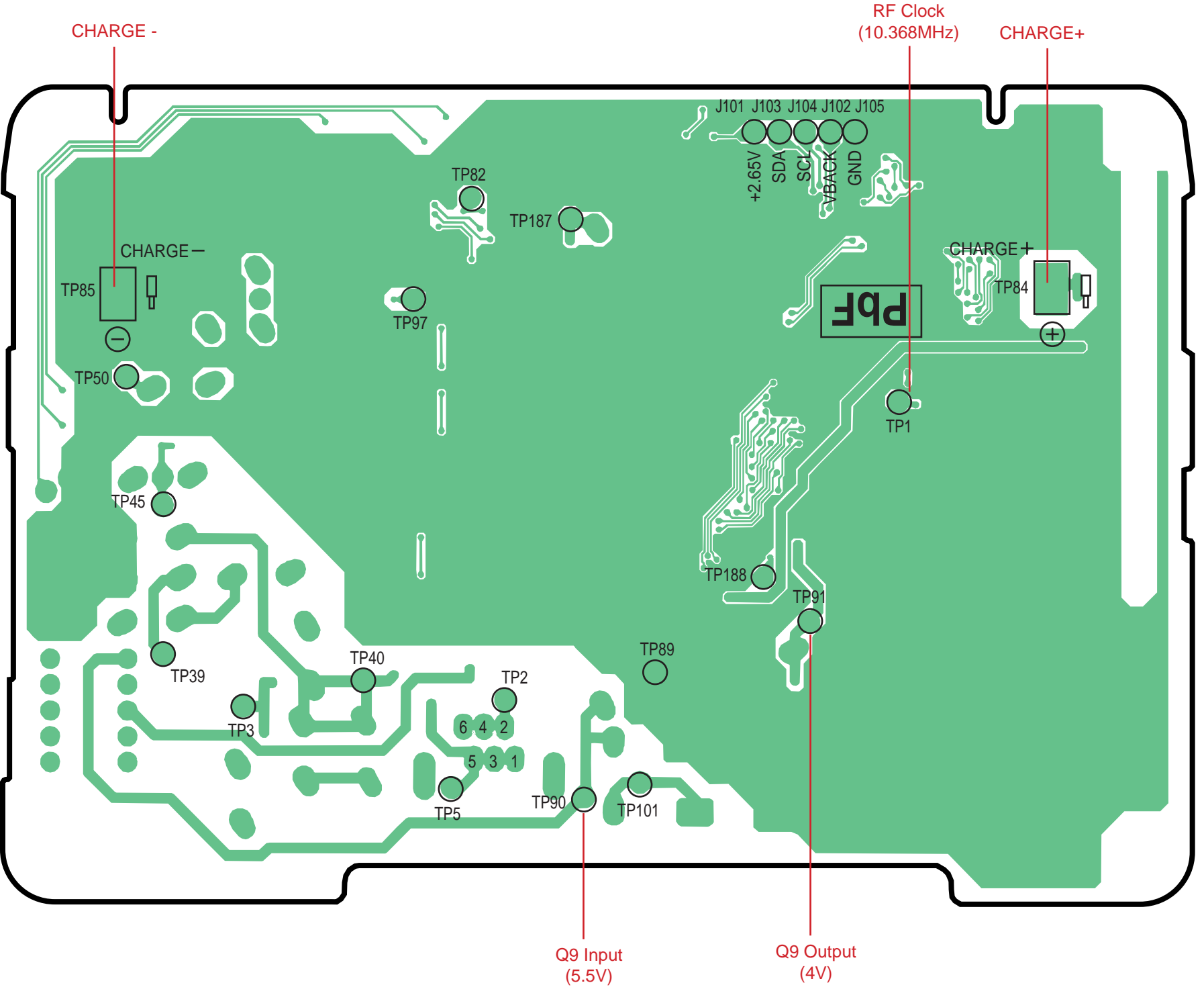




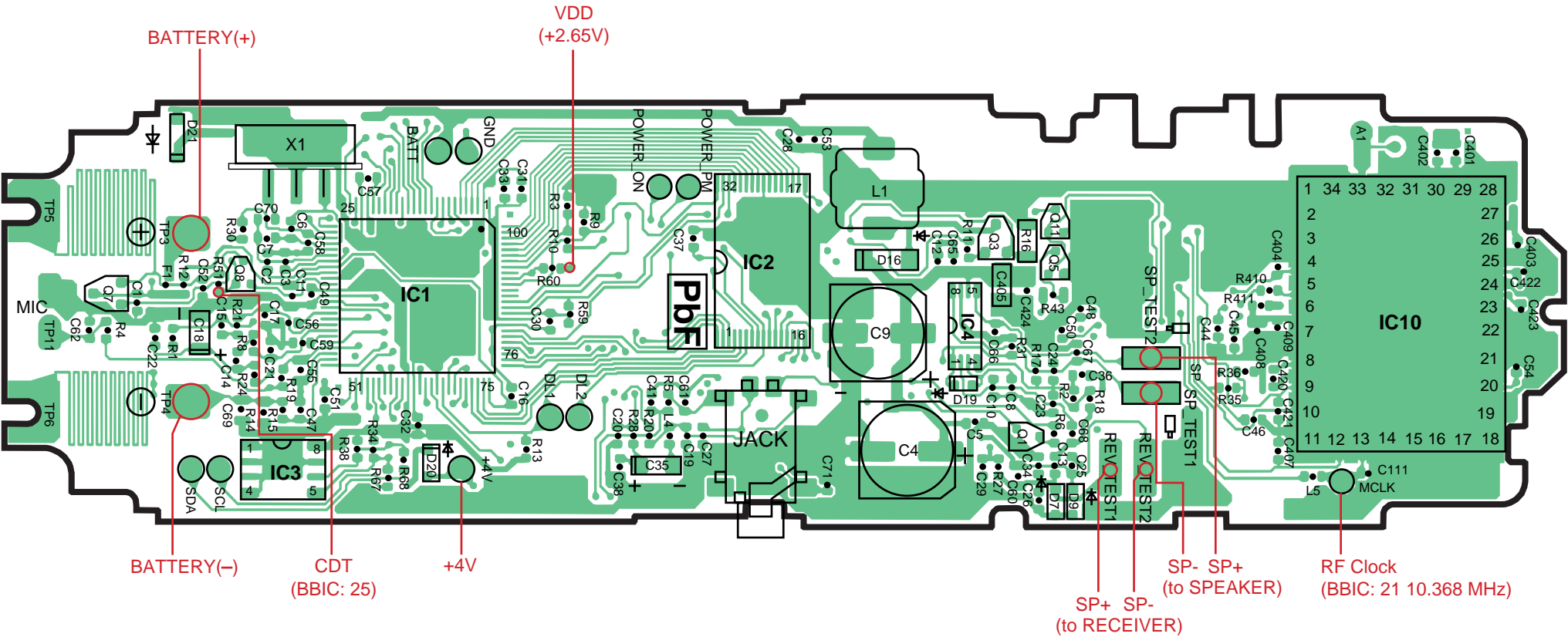
SCHEMATIC DIAGRAM (CHARGER UNIT)



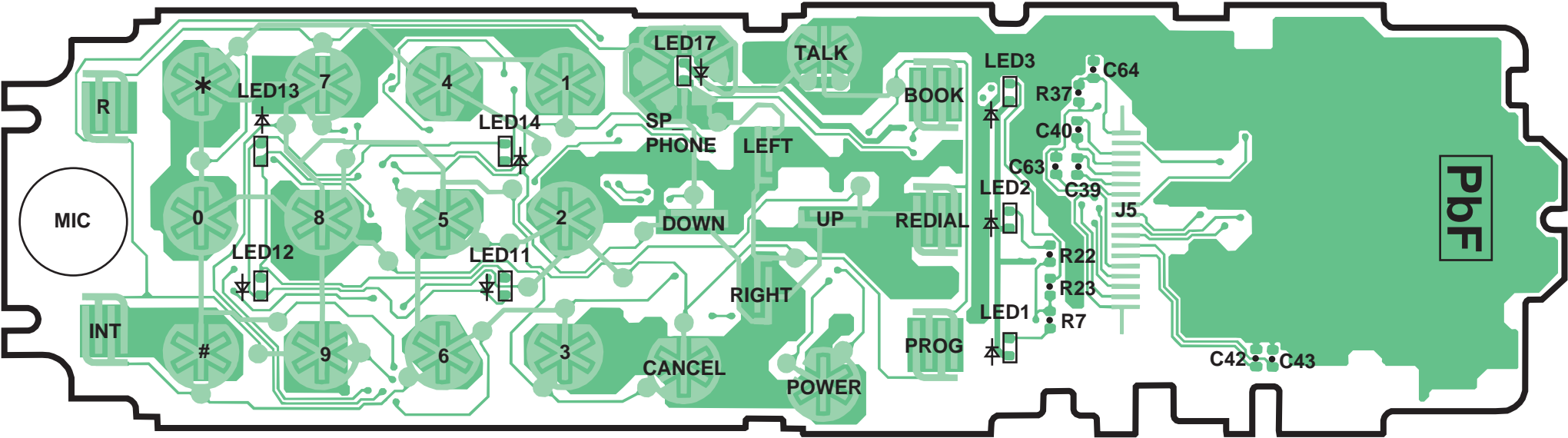
KX-TCD455GM CIRCUIT BOARD (BASE UNIT) Component View



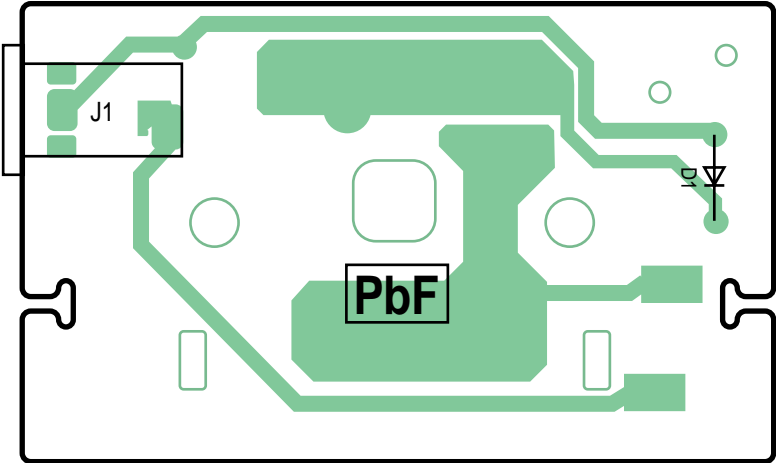
KX-TCD455GM CIRCUIT BOARD (BASE UNIT) Flow Solder Side View



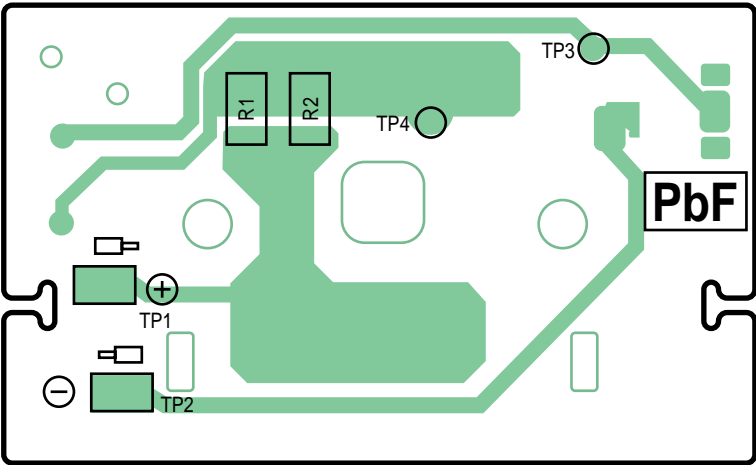
KX-A145EXM CIRCUIT BOARD (HANDSET) Component View



KX-A145EXM CIRCUIT BOARD (HANDSET) Flow Solder Side View



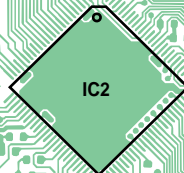
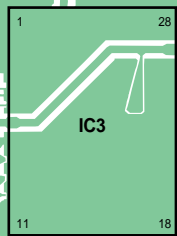
CIRCUIT BOARD (CHARGER UNIT) Component View

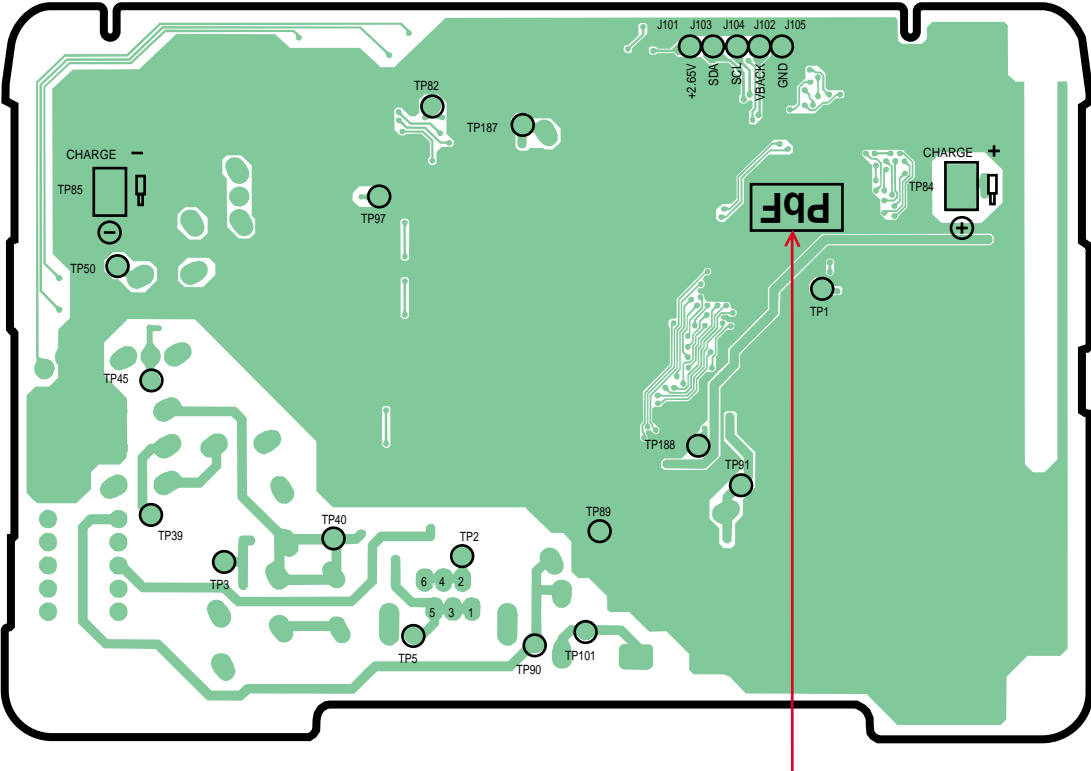


CIRCUIT BOARD (CHARGER UNIT) Flow Solder Side View

Marked

PbF





Marked

Marked

